Arizona Department of Transportation
Intermodal Transportation Division
Environmental Planning Group
205 South 17th Avenue
Phoenix, Arizona 85007

Draft Environmental Assessment

for

GRAND AVENUE (US 60) 27TH AVENUE/ THOMAS ROAD

Maricopa County, Arizona
Federal Aid No. STP-060-B()
ADOT No. RAM 060-B-503
TRACS Project No. 060 MA 160 H5137 01C

Approved by: _____ On: 3/27/01
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Federal Highway Administration

This environmental assessment has been prepared in accordance with provisions and requirements of Chapter 1, Title 23 USC, 23 CFR Part 771, relating to the implementation of the National Environmental Policy Act of 1969.

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LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ACIDS	Arizona CERCLA information and data system
ADOT	Arizona Department of Transportation
ADES	Arizona Department of Economic Security
ADEQ	Arizona Department of Environmental Quality
AGFD	Arizona Game & Fish Department
AIRFA	American Indian Religious Freedom Act
ASC	Alternative Selection Committee
ARPA	Archaeological Resources Protection Act
BLM	Bureau of Land Management
BNSF	Burlington Northern Santa Fe Railway
CAAA	Clean Air Act Amendments
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COE	U.S. Army Corps of Engineers
EA	Environmental Assessment
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
FIRM	Flood Insurance Rate Maps
ISA	Initial Site Assessment
DCR	Design Concept Report
LOS	Level of Service
LUST	Leaking Underground Storage Tank
MAG	Maricopa County Association of Governments
NAAQS	National Ambient Air Quality Standards
NAC	Noise Activity Category
NAFTA	North American Free Trade Agreement
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NOI	Notice of Intent
NOT	Notice of Termination
PISA	Preliminary Initial Site Assessment
PLO	Public Land Order
RCRA	Resource Conservation and Recovery Act
RPTA	Regional Public Transit Authority
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SR	State Route
SRP	Salt River Project
SWPPP	Stormwater Pollution Prevention Plan
USFWS	U.S. Fish & Wildlife Service
UST	Underground Storage Tanks
WQARF	Water Quality Assurance Revolving Fund

MITIGATION MEASURES

The following mitigation measures and commitments are not subject to change or modification without the prior written approval of the Federal Highway Administration.

Arizona Department of Transportation (ADOT) Environmental Planning Group Responsibilities:

1. ADOT would complete archaeological site testing, and data recovery (if necessary) at any known cultural sites prior to construction. (Refer to page 36.)

2. ADOT would complete a full Phase I Site Assessment prior to right-of-way acquisition of any sites identified in the Preliminary Initial Site Assessment that would require further evaluation. (Refer to page 49.)

ADOT Design Section Responsibilities:

1. Details of the parking space replacement mitigation and access changes to Burger King and Universal Technical Institute would be evaluated and made available during the final project design phase. (Refer to page 18.)

2. The remaining portions of Grand Avenue not used as utility access corridors would be removed and landscaped. (Refer to page 21.)

3. Street lighting would be designed to City of Phoenix standards. (Refer to page 21.)

4. ADOT would coordinate with Regional Public Transit Authority during final project design to establish temporary bus stops during construction and to evaluate potential new bus stop locations. (Refer to page 26.)

5. ADOT would construct a 7-foot high noise wall along the northern side of the Grand Avenue grade-separation structure. This wall would be constructed along the entire length of the mainline structure for an approximate length of 2,000 feet. ADOT would also construct an 8-foot wall south of and parallel to Verde Lane within the proposed ADOT right-of-way. (Refer to page 44.)

ADOT Roadside Development Section Responsibilities:

1. All embankment slopes, detention basins, and affected public right-of-way would be landscaped with low-water use plants and the area covered with decomposed granite as regulated in the Phoenix Active Management Area. Trees would be planted along detention basins to screen the facilities from motorists view. (Refer to page 47.)

2. ADOT Roadside Development Section would determine who would prepare the Stormwater Pollution Prevention Plan. (Refer to page 48.)

ADOT District Responsibilities:

1. Because 5 or more acres of land would be disturbed, a National Pollutant Discharge Elimination System permit would be required. The District Construction Office would submit the Notice of Intent and the Notice of Termination to the U.S. Environmental Protection Agency and copies to the Arizona Department of Environmental Quality. A Notice of Intent would be submitted to the U.S. Environmental Protection Agency at least 48 hours prior to the start of construction. (Refer to page 48.)

Contractor's Responsibilities:

1. The contractor would provide notice to utility customers prior to any disruption of service, if applicable. (Refer to page 22.)

2. Closures along Grand Avenue, Thomas Road, and 27th Avenue would occur at night or during weekend hours. (Refer to page 20.)

3. The contractor would notify the local residents, property owners, and local businesses at least 14 days prior to any ground disturbing activities. (Refer to page 27.)

4. The contractor would adhere to Maricopa Rule 310 and 360 regarding fugitive dust emissions and new source performance standards, respectively, during construction. (Refer to page 39.)

5. The contractor would be responsible for obtaining any necessary asbestos permits for demolition of any structures, if applicable. (Refer to page 40.)

6. Any detours necessary during construction, especially during the winter months, would avoid the air quality monitor located on the northwest corner of the Grand Avenue at 27th Avenue and Thomas Road intersection. (Refer to page 40.)

7. In compliance with Executive Order 13112 regarding noxious weeds, all earth-moving and hauling equipment would be washed at their storage facility prior to arriving on site to prevent the introduction of noxious weed seed. (Refer to page 45.)

8. Because 5 or more acres of land would be disturbed, a National Pollutant Discharge Elimination System permit would be required. The contractor would submit the Notice of Intent and the Notice of Termination to the U.S. Environmental Protection Agency and copies to the Arizona Department of Environmental Quality. (Refer to page 48.)

Standard Specifications included as Mitigation Measures:

1. According to *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, Section 107.06 Archaeological Features* (2000 Edition), if previously unidentified cultural resources are discovered during construction, the contractor would stop work immediately at the location, take all reasonable steps to secure the preservation of those features, and notify the ADOT Engineer. ADOT would, in turn, notify the appropriate agency(ies) to evaluate the substantiality of the resource(s). (Refer to page 37.)

2. During construction, care would be taken to ensure that construction materials are handled in accordance with *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction* Section 104.09 (2000 edition) and the Water Quality Standards in Title 18, Chapter 11 of the Arizona Administrative Code as administered by the Arizona Department of Environmental Quality. (Refer to page 48.)

3. Excess waste material and construction debris would be disposed of at sites supplied by the contractor. Disposal would be made at either Municipal Landfills approved under Title D of the Resource Conservation and Recovery Act (RCRA), Construction Debris Landfills approved under Article 3 of the Arizona Revised Statutes (ARS) 49-241 (Aqua Protection Permit) administered by ADEQ, or Inert Landfills. (Refer to page 48.)

4. Any material sources required for this project outside of the project area would be examined for environmental effects, by the contractor, prior to use, through a separate environmental analysis. (Refer to page 48.)

5. According to *Arizona Department of Transportation's Standard Specifications for Road and Bridge Construction, Section 107 Legal Relations and Responsibility to Public* (2000 Edition) (Stored Specification 107HAZMT, 01/15/93), if previously unidentified or suspect hazardous materials are encountered during construction, work would stop at that location and the ADOT Engineer would be contacted to arrange for proper treatment of those materials. Such locations would be investigated and proper action implemented prior to the continuation of work in that location. (Refer to page 49.)

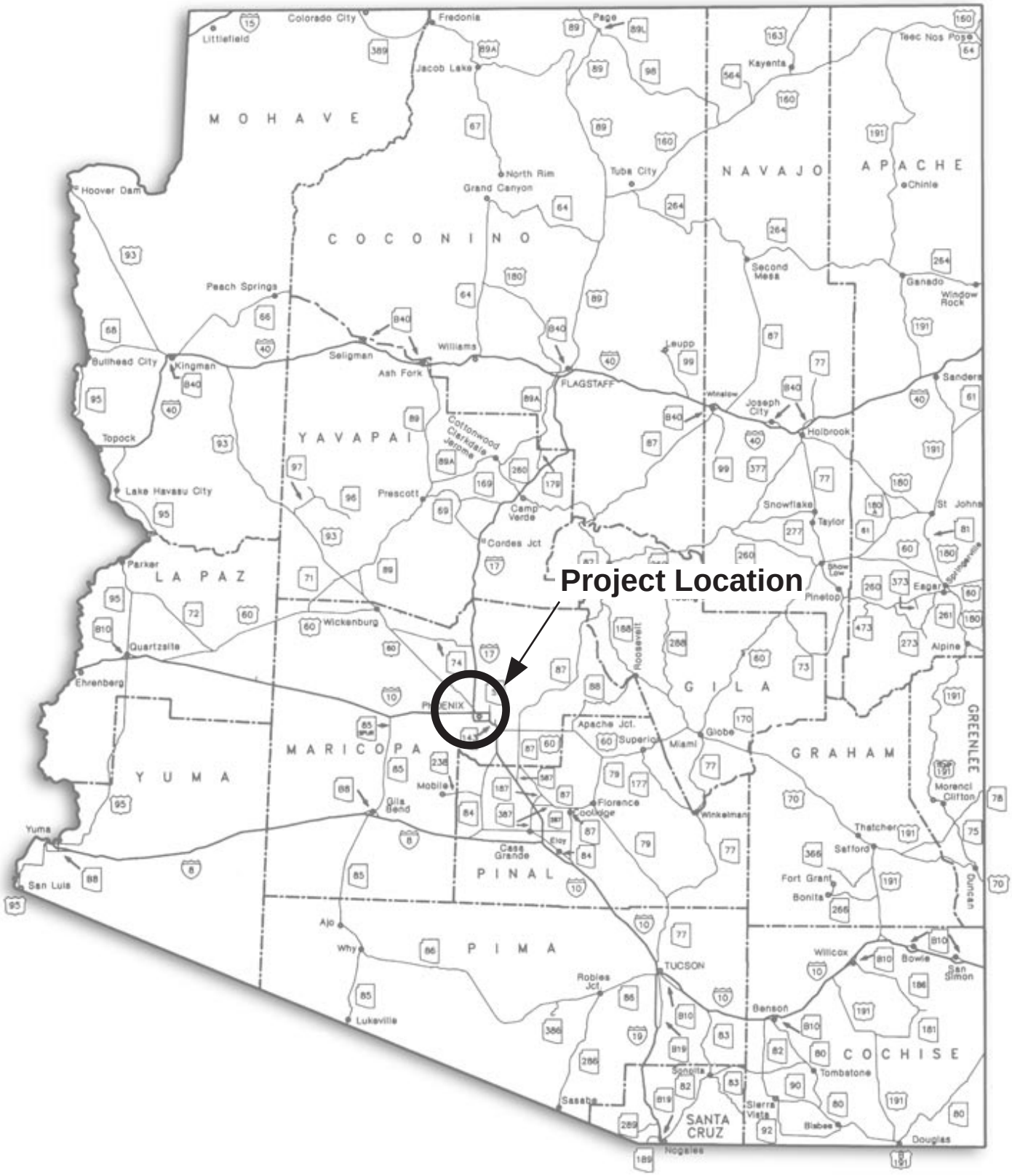


Figure 1. State Location Map

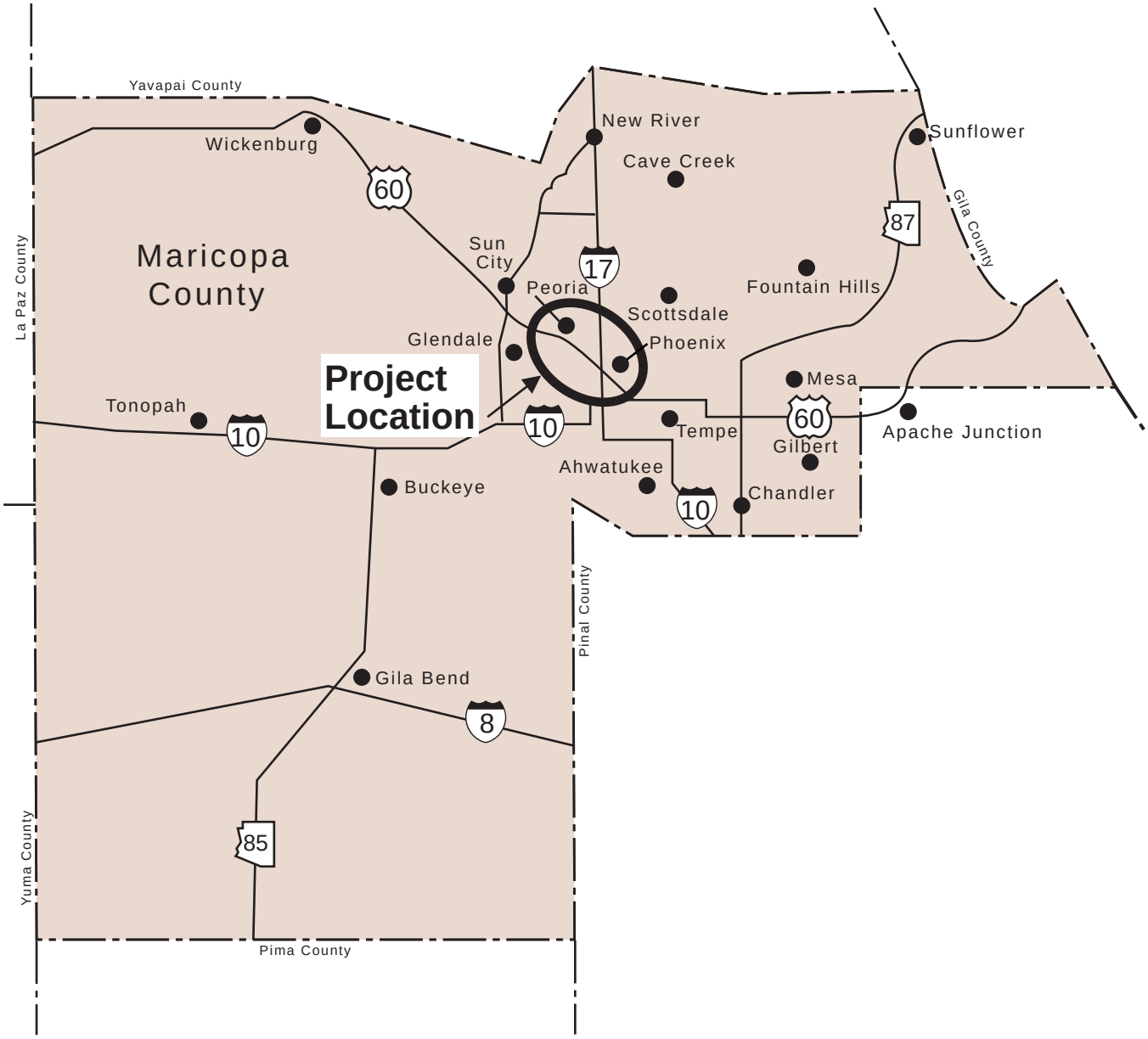


Figure 2. Maricopa County Location Map

NORTH

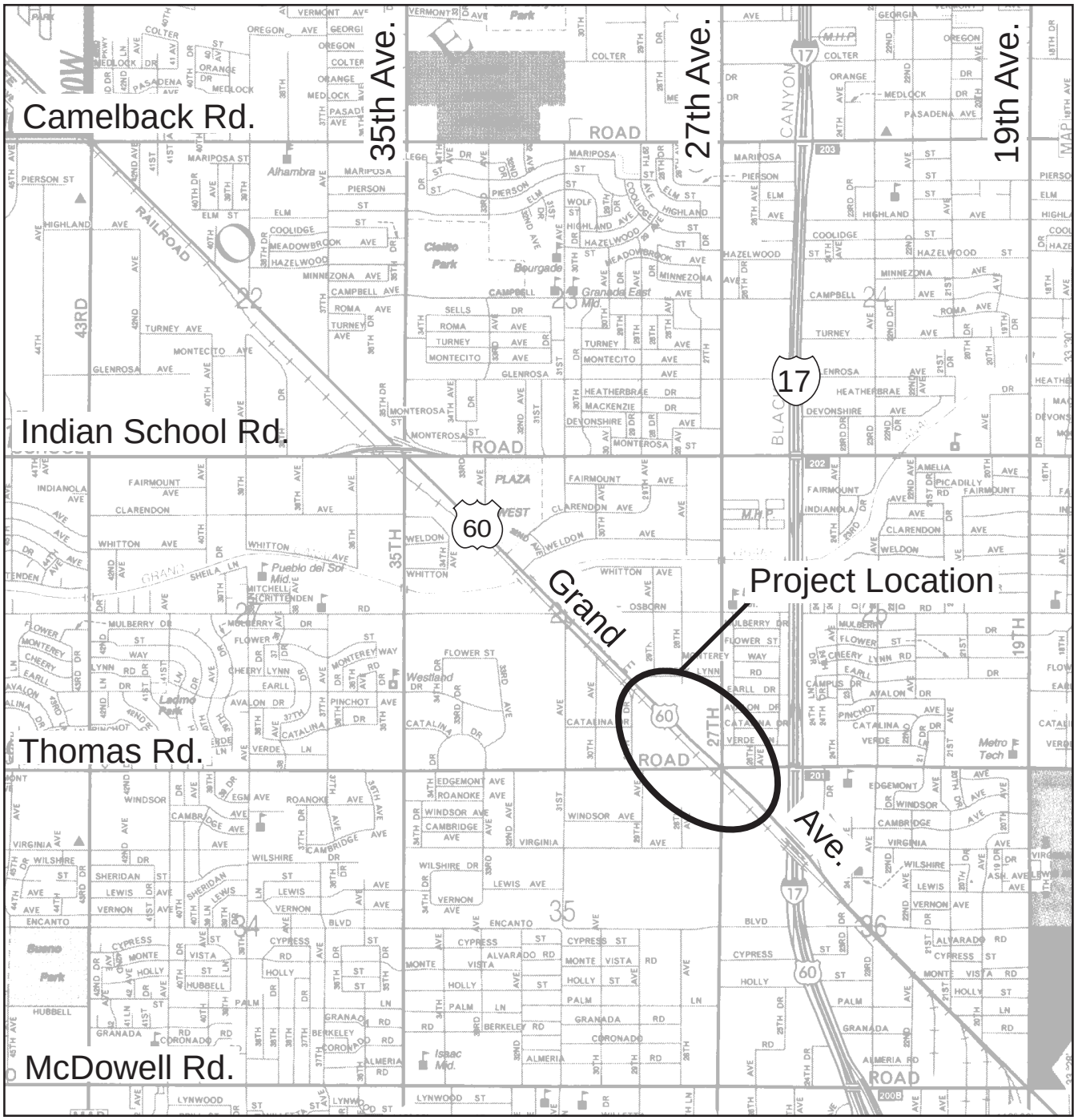


Figure 3. Project Location Map

NORTH

I. PROJECT PURPOSE AND NEED

A. Project Background and Overview

The Arizona Department of Transportation (ADOT), in conjunction with the Federal Highway Administration (FHWA), has identified the need to improve the operation of Grand Avenue (US 60) at the 27th Avenue and Thomas Road intersection, in the City of Phoenix, Maricopa County, Arizona (refer to Figures 1, 2, and 3). ADOT proposes to reconstruct Grand Avenue over 27th Avenue, Thomas Road, and the Burlington Northern Santa Fe Railway (BNSF) spur track. The project would eliminate the current six-legged intersection, reduce traffic delays, and improve the level of service during peak traffic periods.

Scoping and information meetings were held with the public, a stakeholder group, and with Federal, State, and local agencies. Based on the issues and concerns stated during these meetings, and the nature of the proposed improvements, the FHWA, as the lead Federal agency, has indicated that an Environmental Assessment (EA) appears to be the appropriate level of documentation necessary to analyze the magnitude of impacts based on their context and intensity, as are defined in the Council on Environmental Quality Regulations. This EA document describes the probable environmental impacts of the proposed action at the 27th Avenue and Thomas Road intersection based on field surveys, and reviews of agency planning documents and technical reports so that the magnitude of the impacts can be determined. This document is intended to be a companion document with the Design Concept Report (DCR), dated March 2000, which describes in detail the preliminary design features of the proposed build alternative.

Within the Phoenix Metropolitan Area this portion of US 60 is designated as Grand Avenue. Typically, arterial streets within the metropolitan area intersect from north-south and east-west directions, which result in a standard four-legged intersection. Grand Avenue aligns on a northwest to southeast direction. This northwest to southeast alignment of Grand Avenue creates six-legged intersections as it intersects main north-south and east-west arterial streets (refer to Figure 3). Grand Avenue was originally built to link agricultural lands and their growing communities, to downtown Phoenix and the state capitol building. Grand Avenue has undergone a series of studies by state and local agencies over the past two decades to identify and examine a range of alternatives from eliminating Grand Avenue to developing it as an expressway.

In 1985, the Maricopa Association of Governments (MAG) completed the *West Area Transportation Analyses*. This report analyzed the option to build a freeway along the corridor and/or build grade-separation structure(s), which would remove one of the roads at each six-legged intersection. In 1990, the Interstate10 (I-10) to Interstate17 (I-17) connection was completed. This interstate to interstate connection

also reduced some of the through travel on Grand Avenue, but did not resolve all of the traffic operation problems.

ADOT and MAG followed with the *Grand Avenue Corridor Study,* in 1996 which developed expressway concepts that were distinguished by design speeds and traffic service. The Grand Avenue Expressway concept was eliminated by the Governor of Arizona and MAG's Regional Council, in order to bring program costs in line with expected revenues.

In January 1999, ADOT initiated the *Grand Avenue Major Investment Study* (MIS). This study evaluated and recommended transportation improvements for the entire Grand Avenue corridor, and identified potential environmental impacts. A steering committee comprised of ADOT, Cities of Glendale, Peoria, and Phoenix, MAG, Maricopa County, Regional Public Transportation Authority (RPTA), WESTMARC (a private association for businesses and development in the West Valley), and BNSF, was formed to identify improvement options to the Grand Avenue corridor. In addition, two public meetings and a stakeholders meeting were held to provide opportunities for the public to solicit information and comment. The eight project objectives included: 1) eliminate six-legged intersections; 2) eliminate railroad crossings; 3) improve regional mobility; 4) promote development opportunities; 5) improve aesthetics of the corridor; 6) serve the statewide function of US 60; 7) promote multi-modal uses in the corridor; and 8) accommodate the projected travel demand in the corridor. The MIS focused on improvements at eight locations along Grand Avenue. Two options from the 1996 *Grand Avenue Corridor Study,* which also had a public involvement process, were refined and evaluated in the MIS. The two alternatives were Option 4 - Alternating Grade Separations, and Option 5 - Limited Expressway. Each alternative addressed the eight project objectives, but Option 4, the preferred option, would more effectively address railroad crossings and would be less expensive than Option 5.

ADOT's objectives for this project are to improve the traffic operation at the intersection of Grand Avenue, 27th Avenue, and Thomas Road while minimizing environmental impacts and right-of-way acquisition, reducing construction costs, and limiting traffic restrictions during construction. The proposed improvements should comply with current ADOT and American Association of State Highway and Transportation Officials (AASHTO) design criteria and guidelines. The proposed improvements should also accommodate future traffic volumes predicted for the design year 2025. In addition, the facility should provide a level of service (LOS) of D or better and reduce intersection delay times. LOS is a qualitative measure referring to the degree of congestion or delay experienced by motorists. Levels of service range from A to F, with A being the best quality of traffic flow, and F being the poorest (refer to Table 1 and Figure 4).

Level of Service A.

Level of Service D.

Level of Service B.

Level of Service E.

Level of Service C.

Level of Service F.

Figure 4. Level of Service Classifications

The recommended alternative for Grand Avenue at the 27th Avenue/Thomas Road intersection, as depicted in the MIS, is a grade-separation structure, meaning Grand Avenue would be elevated and pass over both 27th Avenue and Thomas Road. Grand Avenue would align to the northeast of the existing roadway in order to reduce the length of the bridge structure. It would also allow the project to be built while minimizing traffic impacts and detours.

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Delay per Vehicle (seconds/vehicle)
A	0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

B. Project Need

Grand Avenue and the adjacent BNSF Railway provide a transportation corridor serving the industrial and commercial businesses in the western Phoenix Metropolitan Area. Grand Avenue also provides through traffic mobility and local access to commercial and retail businesses, and residences along the corridor.

The six-legged intersection of Grand Avenue at 27th Avenue and Thomas Road currently creates traffic signal delays of almost three minutes in the morning commute, and approximately 4 minutes during the afternoon peak. This delay causes a LOS F during both peak travel periods. In the 2025 design year, traffic volumes are expected to increase resulting in increased delays and congestion at this intersection. Without operational improvements, the intersection is expected to continue to operate at LOS F with a 10 percent increase in delay for both peak travel periods (refer to Table 2). Construction of a grade-separation to eliminate the six-legged intersection would improve the LOS of the intersection to LOS D-E during peak periods and reduce traffic delays by 70 percent. In addition, the capacity of the intersection would increase, resulting in reduced congestion and increased regional mobility.

Table 2 illustrates 1999 and forecasted 2025 traffic volumes and LOS classifications if no improvements (No Action) to the intersection were made. Traffic volumes are represented by a range of Average Daily Traffic (ADT) of vehicles per day (vpd). This range illustrates that volumes may differ on either side of the six-legged intersection because of turning movements onto the other main arterial streets, and the fact that not all vehicles will necessarily travel through the intersection.

Table 2. Existing 1999 and Forecast 2025 No Action Alternative Traffic Volume and LOS Classifications						
	1999			2025 (No Action Alternative)		
		LOS			LOS	
Location	ADT (vpd)[1]	AM	PM	ADT (vpd)	AM	PM
Grand Avenue	26,900- 35,300	F	F	30,700- 36,300	F	F
Thomas Road	28,800-40,200	F	F	33,600- 40,700	F	F
27th Avenue	19,900-21,300	F	F	21,500- 25,300	F	F

[1] *ADT (vpd) - Average Daily Traffic (vehicles per day)*

C. Issues Eliminated from Detailed Study

There are no known riparian habitats, wetlands, prime or unique farmlands, national natural landmarks, or wild and scenic rivers within the project area; therefore, there would be no impacts to these resources. This negative declaration of impacts on riparian, wetlands, prime or unique farmlands, national natural landmarks, or wild and scenic rivers will not be restated in this document.

II. ALTERNATIVES CONSIDERED

This section describes the alternatives considered for the proposed improvements to Grand Avenue in the DCR. Build alternatives and a No Action Alternative were evaluated based on public and stakeholder input, right-of-way requirements, costs, and feasability of design concept. The Alternative Selection Committee included representatives from ADOT Valley Project Management, ADOT Phoenix Construction District, ADOT Right-of-Way Section, ADOT Roadway Section, ADOT Environmental Planning Group, FHWA, and the City of Phoenix.

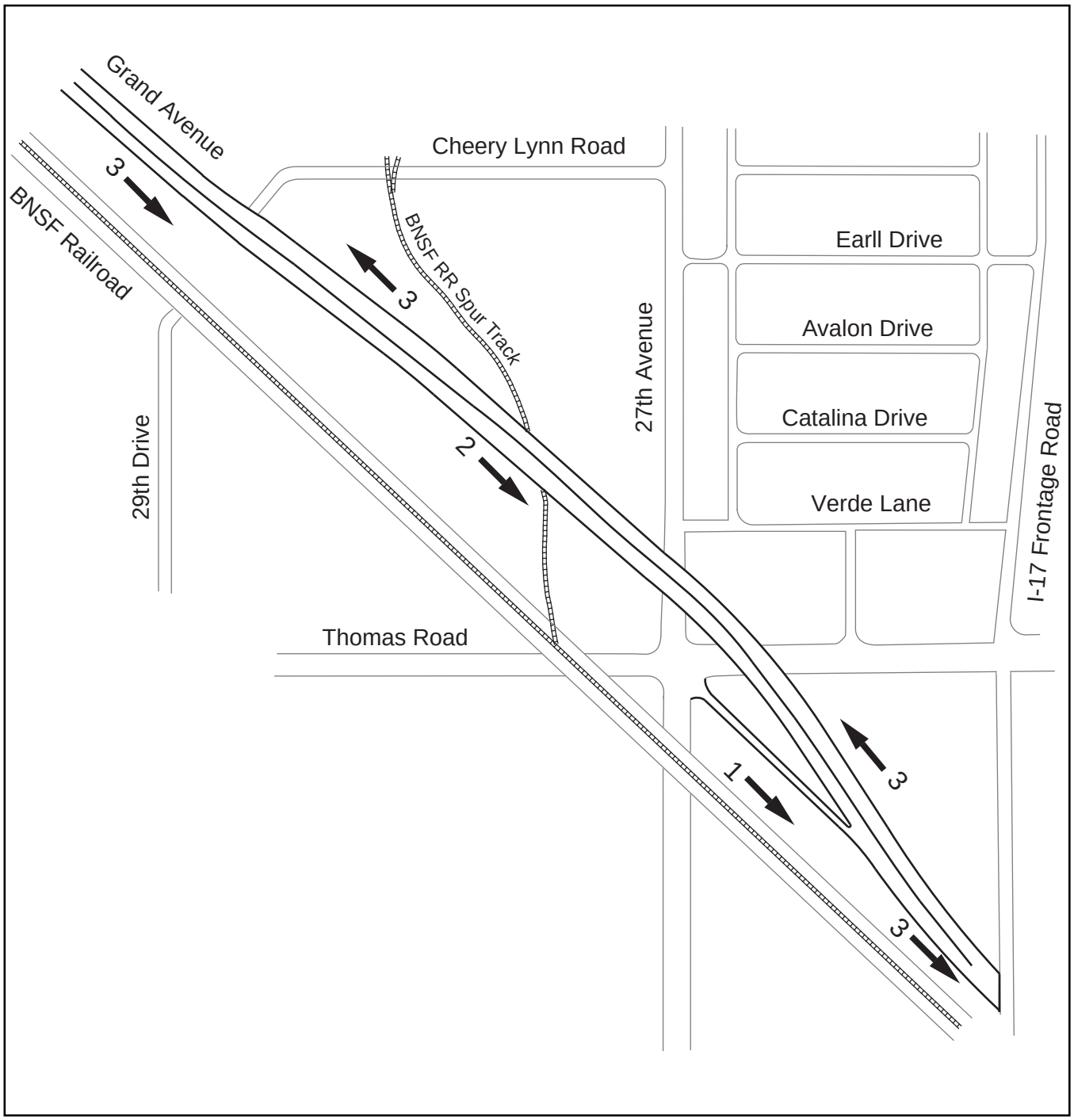
A. No Action Alternative

Alternative 1: No Action

The "No Action" Alternative (Alternative 1) would allow for minor improvements and routine maintenance. This alternative proposes no major improvements for Grand Avenue at the 27th Avenue and Thomas Road intersection (refer to Figure 3). The intersection would remain as a six-legged intersection and would not decrease delay times or improve traffic movements through the intersection in the design year, when compared with current build recommendations. The No Action Alternative does not meet the operational needs of the project, but is the baseline condition used for comparison against the build alternatives in order to determine the magnitude of impacts.

B. Build Alternatives Considered

Seven build alternatives (Alternatives 2-8) were developed for the Grand Avenue overpass. These alternatives were developed based on the design criteria established for the project including cost, LOS, right-of-way, railroad crossings, drainage, and earthwork. The evaluation was used to assist the Alternative Selection Committee in the selection of a preferred alternative for the 27th Avenue and Thomas Road project location. For the purposes of this EA, the alternatives are described and contrasted by total project cost, morning and afternoon LOS, and turning movements not accommodated when compared to turning movements that currently exist (refer to Table 3). These criteria were weighted factors used by the Alternative Selection Committee during their final selection of the preferred alternative. For more details of each alternative, please refer to the Design Concept Report (ADOT 2000).



Key

Direction of Travel

3 Number of Thru Lanes

Figure 5. Alternative 2: MIS Option 4 (eliminated)

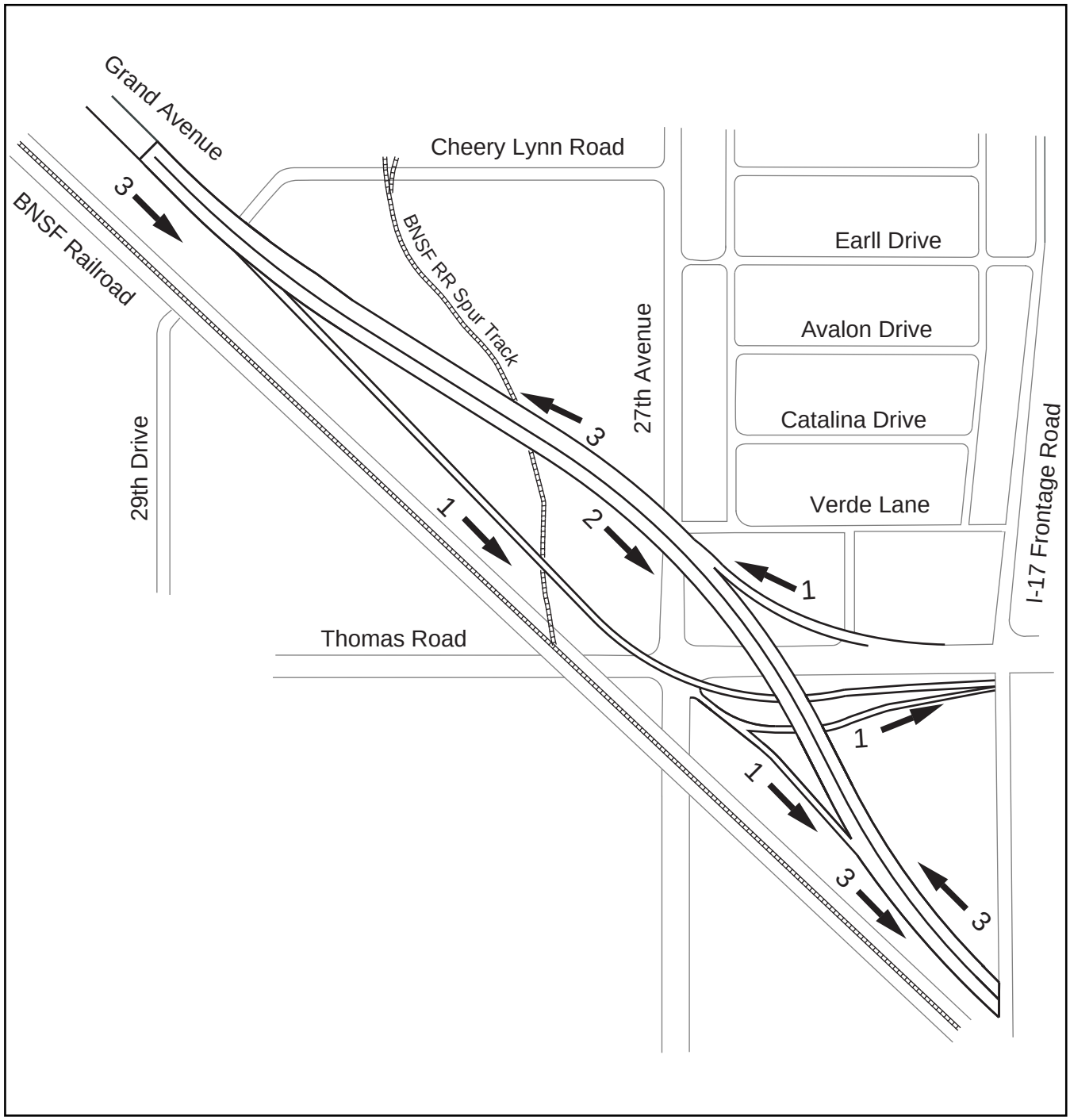
Table 3. Comparison of Alternatives								
Evaluation Criteria	**Alternatives**							
	1 No Action	**2**	**3**	**4**	**5**	**6**	**7**	**8 Preferred Alternative**
Total Cost	**$0**	**$21.1 m**	**$28.7 m**	**$29.8 m**	**$23.7 m**	**$22.2 m**	**$21.6 m**	**$24.8 m**
Morning LOS (delay time in seconds)	**F(169)**	**D(37)**	**C(30)**	**C(30)**	**E(64)**	**D(44)**	**E(66)**	**D(41)**
Evening LOS (delay time in seconds)	**F(263)**	**E(72)**	**D(53)**	**D(53)**	**F(114)**	**E(79)**	**F(117)**	**E(62)**
Turning Movements not allowed[1]	**None**	**1, 2, 3, 4, 7, 8**	**3, 4, 7, 8**	**3, 4**	**None**	**3, 4**	**3, 4**	**None**

[1]Turn movements include: (1) westbound Thomas to northwest-bound Grand Avenue, (2) southeast-bound Grand Avenue to eastbound Thomas, (3) northwest-bound Grand Avenue to westbound Thomas, (4) northwest-bound Grand Avenue to 27th Avenue, (5) eastbound Tomas Road to southeast-bound Grand Avenue, (6) southbound 27th Avenue to southeast-bound Grand Avenue, (7) southeast-bound Grand Avenue to southbound 27th Avenue, and (8) northbound 27th Avenue to northwest-bound Grand Avenue.

In each of the following build alternatives, Grand Avenue would be elevated and pass over Thomas Road and 27th Avenue. The alternatives may differ in the alignment of the overpass structure, and the street connectors provided between Grand Avenue, Thomas Road, and 27th Avenue. In all cases, 29th Drive and Cheery Lynn Road would be disconnected from Grand Avenue because of the overpass structure. Each alternative removes Grand Avenue from the current six-legged intersection configuration. Below is a description of each alternative.

Alternative 2: MIS Option 4 (eliminated)

Alternative 2 would include the construction of an on-ramp from the 27th Avenue and Thomas Road intersection to accommodate southeast-bound traffic onto Grand Avenue. Existing collector streets would provide all other movements between Grand Avenue and Thomas Road or 27th Avenue. Three travel lanes would be provided for northwest-bound Grand Avenue. Southeast-bound Grand Avenue would taper from a three-lane facility to two lanes southeast of 29th Drive. As the southeast-bound on-ramp connects to Grand Avenue, this connection would provide a transition back to a three-lane road (refer to Figure 5).



Key

Direction of Travel

3 Number of Thru Lanes

Figure 6. Alternative 3: Thomas Road Flyovers (eliminated)

Alternative 2 would provide a LOS D-E during the morning and evening peak travel periods respectively. Traffic delay times through this intersection would decrease to 37 seconds per vehicle (sec/veh) during the morning commute and 72 sec/veh during the evening commute. Several traffic movements would not be accommodated at the intersection including westbound Thomas Road to northwest-bound Grand Avenue, southeast-bound Grand Avenue to eastbound Thomas Road, northwest-bound Grand Avenue to westbound Thomas Road, northwest-bound Grand Avenue to 27th Avenue, southeast-bound Grand Avenue to southbound 27th Avenue, and northbound 27th Avenue to northwest bound Grand Avenue. The total project estimated costs would be $21.1 million.

Alternative 2 was eliminated from consideration by the Alternative Selection Committee because it would rely on local streets for connections between Grand Avenue and 27th Avenue or Thomas Road. The local streets were not designed to handle the additional traffic from either a capacity or operations perspective.

Alternative 3: Thomas Road Flyovers (eliminated)

The "No Action" Alternative (Alternative 1) would allow for minor improvements and routine maintenance. This alternative proposes no major improvements for Grand Avenue at the 27th Avenue and Thomas Road intersection (refer to Figure 6). The intersection would remain as a six-legged intersection and would not decrease delay times or improve traffic movements through the intersection in the design year, when compared with current build recommendations. The No Action Alternative does not meet the operational needs of the project, but is the baseline condition used for comparison against the build alternatives in order to determine the magnitude of impacts.

Alternative 3 would provide a LOS C-D, which is slightly better than Alternatives 2, 5, 6, 7, and 8 during the morning and evening peak periods, respectively. Traffic delay times through this intersection would decrease to 30 sec/veh during the morning commute and 53 sec/veh during the evening commute. However, Alternative 3 was eliminated by the Alternative Selection Committee because it would cost $3.9 million more than Alternative 8, and would accommodate four fewer turn movements when compared to Alternative 8 (refer to Table 3).

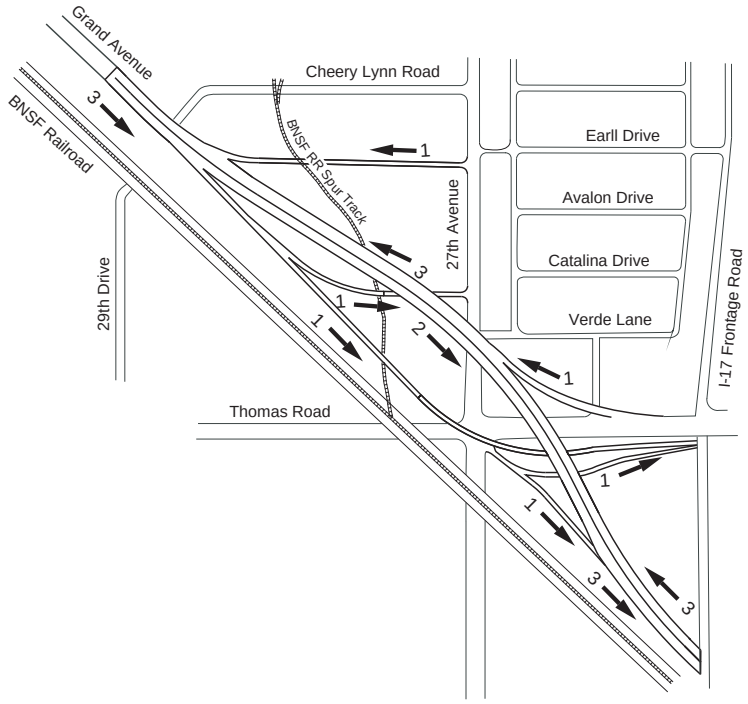


Figure 7. Alternative 4: Thomas Road Flyovers and 27th Avenue Ramps (eliminated)

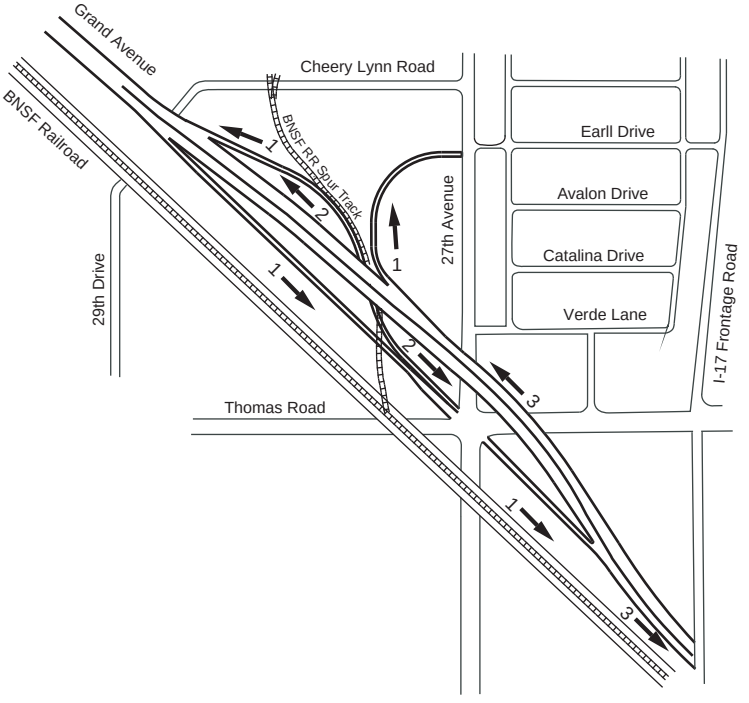


Figure 8. Alternative 5: MIS Option 5 with Northwest-Bound Off-Ramp (eliminated)

Key

→ Direction of Travel

3 Number of Thru Lanes

Figures 7 and 8. Alternatives 4 and 5

Alternative 4: Thomas Road Flyovers and 27th Avenue Ramps (eliminated)

Alternative 4 would be aligned similar to Alternatives 3 and 8, and would provide all ramp connections and travel lane accommodations as identified in Alternative 3 (refer to Figure 7). This alternative would provide two additional ramps connecting to 27th Avenue north of the 27th Avenue and Thomas Road intersection. Additional ramps include a southeast-bound Grand Avenue off-ramp that passes under the Grand Avenue overpass and connects to 27th Avenue, and a northwest-bound on-ramp from 27th Avenue just south of Earll Drive. A new traffic signal would be located on 27th Avenue at the intersection of the northwest-bound on-ramp. Both ramps would require crossing the BNSF spur track at grade level.

Alternative 5: MIS Option 5 With Northwest-Bound Off-Ramp (eliminated)

Alternative 5 is aligned similar to Alternatives 2, 6, and 7 (refer to Figure 8). Three travel lanes would provide for northwest-bound travel on Grand Avenue until reaching the off-ramp, providing access to 27th Avenue. A new traffic signal would be constructed at this point of connection with 27th Avenue. A northwest-bound on-ramp would provide access from the Thomas Road and 27th Avenue intersection connecting to Grand Avenue just southeast of the Cheery Lynn Road alignment. Northwest of this on-ramp connection, Grand Avenue would transition back to a three-lane facility.

Southeast-bound Grand Avenue would taper to two travel lanes beginning at the off-ramp providing access to both 27th Avenue and Thomas Road. A southeast-bound on-ramp would be provided from the southeast corner of the 27th Avenue and Thomas Road intersection. At the connection of this on-ramp with southeast-bound Grand Avenue, the main alignment would transition back to a three-lane facility. Because the southeast-bound off-ramp and the southeast-bound on-ramp either terminate or originate on either side of the 27th Avenue and Thomas Road intersection, respectively, a fifth leg of the intersection would be created. This would add additional operational and traffic concerns for motorists.

Alternative 5 would provide all turn movements similar to Alternative 8. Traffic delays through this intersection would be 64 sec/veh during the morning commute and 114 sec/veh during the evening commute, which would result in a LOS E-F. The estimated cost for Alternative 5 would be $23.7 million.

Alternative 5 was eliminated from consideration because it would only remove one leg of the six-legged intersection. The design and location of the southeast bound off-ramp termini at the northwest corner of the 27th Avenue/ Thomas Road intersection, would create a fifth leg and result in a LOS F during the

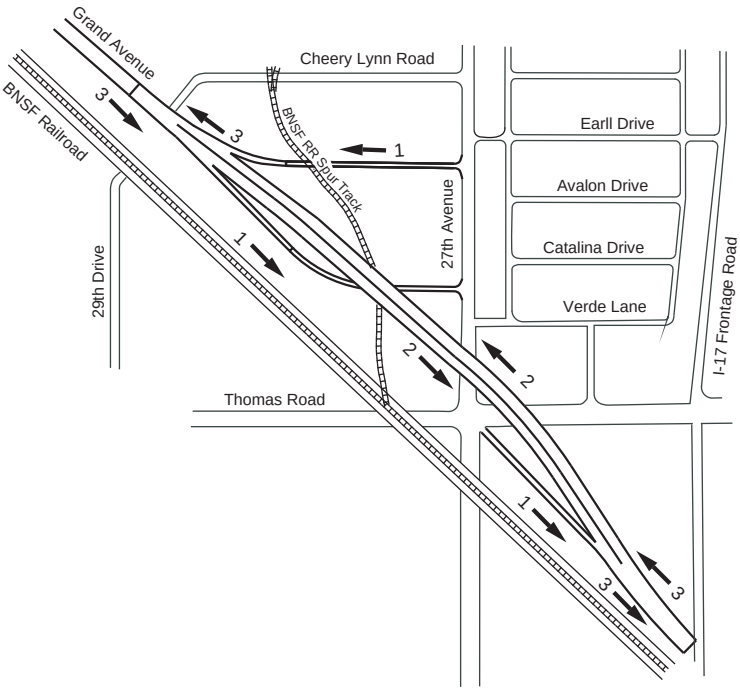


Figure 9. Alternative 6: 27th Avenue Ramps (eliminated)

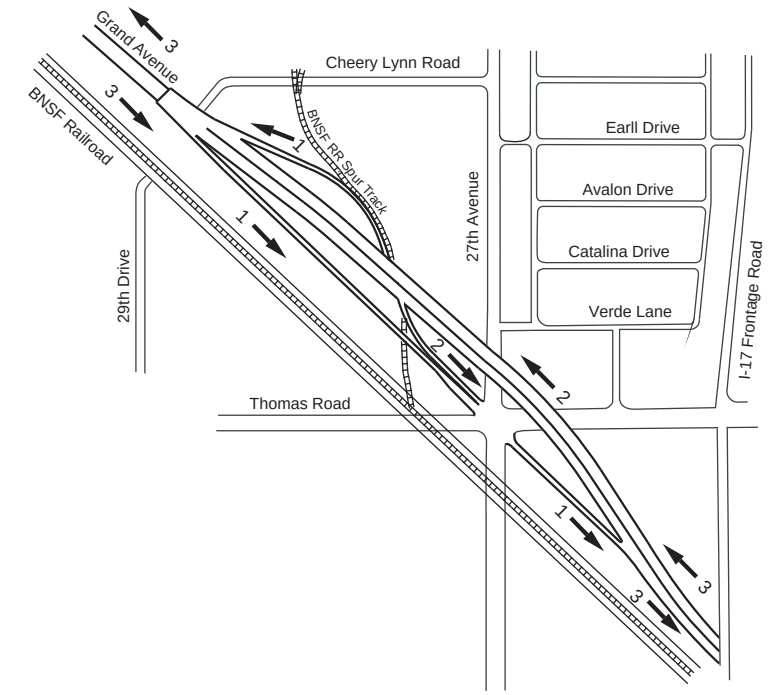


Figure 10. Alternative 7: MIS Option 5 (eliminated)

Key

Direction of Travel

3 Number of Thru Lanes

NORTH

Figures 9 and 10. Alternatives 6 and 7

evening peak commute at this intersection. This would not meet the intent and project goal of eliminating intersection congestion.

Alternative 6: 27th Avenue Ramps (eliminated)

Alternative 6 is essentially the same as Alternative 2 with the addition of two ramps connecting to 27th Avenue (refer to Figure 9). Additional ramps would include a southeast-bound Grand Avenue off-ramp that passes under the Grand Avenue overpass and connects to 27th Avenue, and a northwest-bound on-ramp from 27th Avenue to Grand Avenue located just south of Earll Drive. A new traffic signal would be located on 27th Avenue at the northwest-bound on-ramp intersection. Both ramps would cross the BNSF spur track at grade level. Three travel lanes would be tapered to two travel lanes between the southeast-bound off-ramp and the southeast-bound on-ramp, at which Grand Avenue would transition back to a three lane facility. Northwest-bound travel would also only provide two travel lanes across the overpass structure.

Alternative 6 would not allow traffic movements from northwest-bound Grand Avenue to westbound Thomas Road or northwest-bound Grand Avenue to 27th Avenue, similar to Alternatives 4 and 7. Traffic delays through this intersection would range from 44 sec/veh during the morning commute to 79 sec/veh during the evening commute, which would result in a LOS D-E. The estimated cost for Alternative 6 would be $22.2 million.

Alternative 6 was eliminated from consideration because traffic movements would not be allowed from northwest-bound Grand Avenue to westbound Thomas Road and northwest-bound Grand Avenue to 27th Avenue.

Alternative 7: MIS Option 5 (eliminated)

Alternative 7 is similar to Alternative 5, but differs in the elimination of the northwest-bound off-ramp (refer to Figure 10). This alternative would allow access to and from the 27th Avenue and Thomas Road intersection similar to Alternative 5. These connections would create the similar circumstance of a fifth inbound leg at this intersection. Alternative 7 would also not allow traffic movements from northwest-bound Grand Avenue to westbound Thomas Road or northwest-bound Grand Avenue to 27th Avenue. Traffic delay times through this intersection would include 66 sec/veh during the morning commute and 117 sec/veh during the evening commute. The estimated cost for Alternative 7 would be $21.6 million.

Alternative 7 was eliminated from consideration because of the addition of a fifth inbound leg at the 27th Avenue/ Thomas Road intersection. This would result in a LOS F during the evening peak commute and not meet the intent and project goal of eliminating the intersection congestion.

Alternative 8: Grand Avenue Overpass (preferred alternative)

Alternative 8 was created by modifying Alternative 6, which included: (1) connecting the northwest bound loop off-ramp to 27th Avenue as shown in Alternative 5; (2) moving the northwest bound on- and off-ramp terminals to align with the intersection at Earll Drive; and (3) moving the main alignment northeastward as shown in Alternatives 3 and 4. The northwest bound on-ramp and off-ramp would connect to 27th Avenue, just south of Cheery Lynn Road. The southeast bound off-ramp would connect to 27th Avenue north of the 27th Avenue and Thomas Road intersection near the Universal Technical Institute facility (refer to Figure 11).

Traffic delay times at the 27th Avenue and Thomas Road intersection would range from 41 sec/veh during the morning commute to 62 sec/veh during the evening commute, with a respective LOS D-E. Alternative 8 would provide all existing traffic movements. The estimated cost for Alternative 8 would be $24.8 million.

Alternative 8 was selected by the Alternative Selection Committee, as the preferred alternative, because it would provide the best combination of accommodating all existing turn movements with the best attainable level of service and the least amount of delay per vehicle, when compared to the other build alternatives (refer to Table 3). Although the 27th Avenue and Thomas Road intersection would operate at LOS E (one LOS less than the desired LOS D), Alternative 8 would provide a 76 percent reduction in delay times per vehicle as compared to the No Action Alternative, and 9 seconds of delay per vehicle higher than either Alternatives 3 or 4.

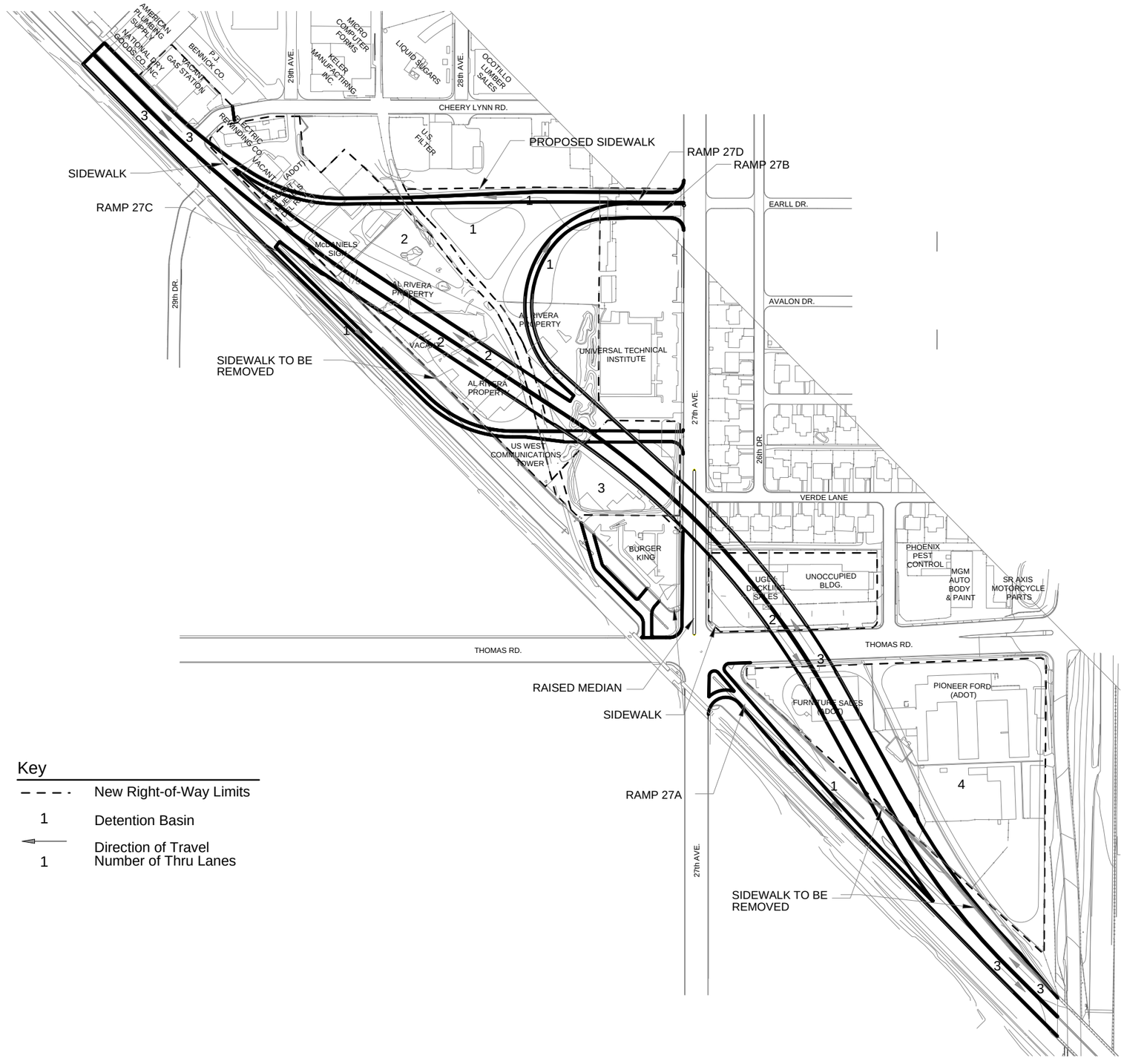


Figure 11. Alternative 8: Grand Avenue Overpass (preferred alternative)

III. DESIGN FEATURES OF THE PREFERRED ROADWAY IMPROVEMENTS

The following information describes the roadway features of the preferred alternative for Grand Avenue at 27th Avenue and Thomas Road, including the roadway's horizontal and vertical alignment, access control, right-of-way requirements, drainage and floodplain considerations, traffic control, utilities, and structures.

A. Horizontal and Vertical Alignment

The preferred alternative would reconstruct Grand Avenue to the northeast of its existing alignment as a grade-separation overpass. Lane widths would be 12 feet, with 4 foot inside shoulder widths, and 8-10 foot outside shoulder widths. Bridge structures would provide a minimum clearance of16.5 feet over local streets, and 23.5 feet over the BNSF Railway spur. The design speed for Grand Avenue would be 55 miles per hour. The design speed for the associated ramps would be 35 miles per hour.

B. Access and Access Control Features

Access to Grand Avenue within the project area would be limited to ramps. Northwest bound on- and off-ramps would terminate on 27th Avenue just south of Cheery Lynn Road. A traffic signal would be considered and evaluated during final design. Pavement markings would discourage left turns from southbound 27th Avenue onto Earll Drive. The southbound 27th Avenue approach to the Thomas Road intersection would contain dual left-turn lanes, two through lanes, and a right-turn lane.

Access from Cheery Lynn Road and 29th Drive to Grand Avenue would be eliminated to accommodate the proposed ramp locations and/or the associated overpass facilities. Access to the Burger King and Outdoor System's sign would be provided via a new access point from Thomas Road. Access from 27th Avenue to Burger King would remain, but the entrance would be relocated just to the south of its current location. Final details of this access change to Burger King and Universal Technical Institute would be evaluated during the final project design phase.

C. Right-of-Way

The existing right-of-way limits within the project area, as measured from highway centerline, range between 82 and 106 feet, which include 90-100 feet along Grand Avenue, 86-106 feet along Thomas Road, and 82 feet wide along 27th Avenue. Approximately 18.7 acres of new right-of-way would be required for the proposed roadway improvements. New right-of-way would require 10 full-take parcels and 5 partial-take parcels that would affect 15 property owners (refer to Figure 11). In addition, a temporary construction

easement (TCE) would be required to construct the bridge crossing near Universal Technical Institute (UTI).

Because 27th Avenue would need to be widened to the west to accommodate a right-turn lane, two through lanes, and dual left-turn lanes, 14 parking spaces at the Burger King, and the location of the Outdoor System's sign would need to be acquired for right-of-way. In addition, as a result of the proposed northwest-bound off-ramp location, Universal Technical Institute would lose 58 parking spaces (refer to Figure 12). Details of the parking space replacement mitigation and access changes to Burger King and Universal Technical Institute would be evaluated by ADOT and made available during the final project design phase.

D. Drainage, Floodplain Considerations, and Structures

Drainage facilities would be designed for the proposed project in accordance with ADOT Roadway Design Guidelines. Drainage impacts would be mitigated by the construction of four detention basins within the project area, totaling 71.1 acre-feet of storage. Channels and culverts would be utilized to maintain and direct flows to the detention basins. These channels will be designed using ADOT criteria. Detention outfall sites would be lined with riprap. All sidewalks and sections of streets would be designed to allow run-off into these basins.

The preferred alternative's stormwater detention system could improve local flooding conditions, because the proposed improvements would include detention basins, channels and culverts. However, area-wide flooding issues were not within the scope of this project and as a result, specific design features were not evaluated to eliminate this problem. The proposed project's drainage improvements would, as a minimum, replace the current system's storage capability and drainage pattern.

E. Traffic Control

Traffic control would be in accordance with Part VI of the *Manual on Uniform Traffic Control Devices for Streets and Highways*, published by the US Department of Transportation, FHWA (1998), and ADOT's Traffic Control Supplement (1996). In addition, traffic control during construction, would be designed in accordance with the *City of Phoenix Traffic Barricade Manual (*City of Phoenix, 1998). Traffic restrictions would be minimal during construction because the proposed improvements would include an offset grade-separate bypass of Grand Avenue and the affected businesses and residential developments would be acquired before construction.

Maintenance of traffic and access would be addressed in the traffic control plan. Key aspects would include: 1) maintenance of traffic on 27th Avenue and Thomas Road, and to businesses; 2) no closure of

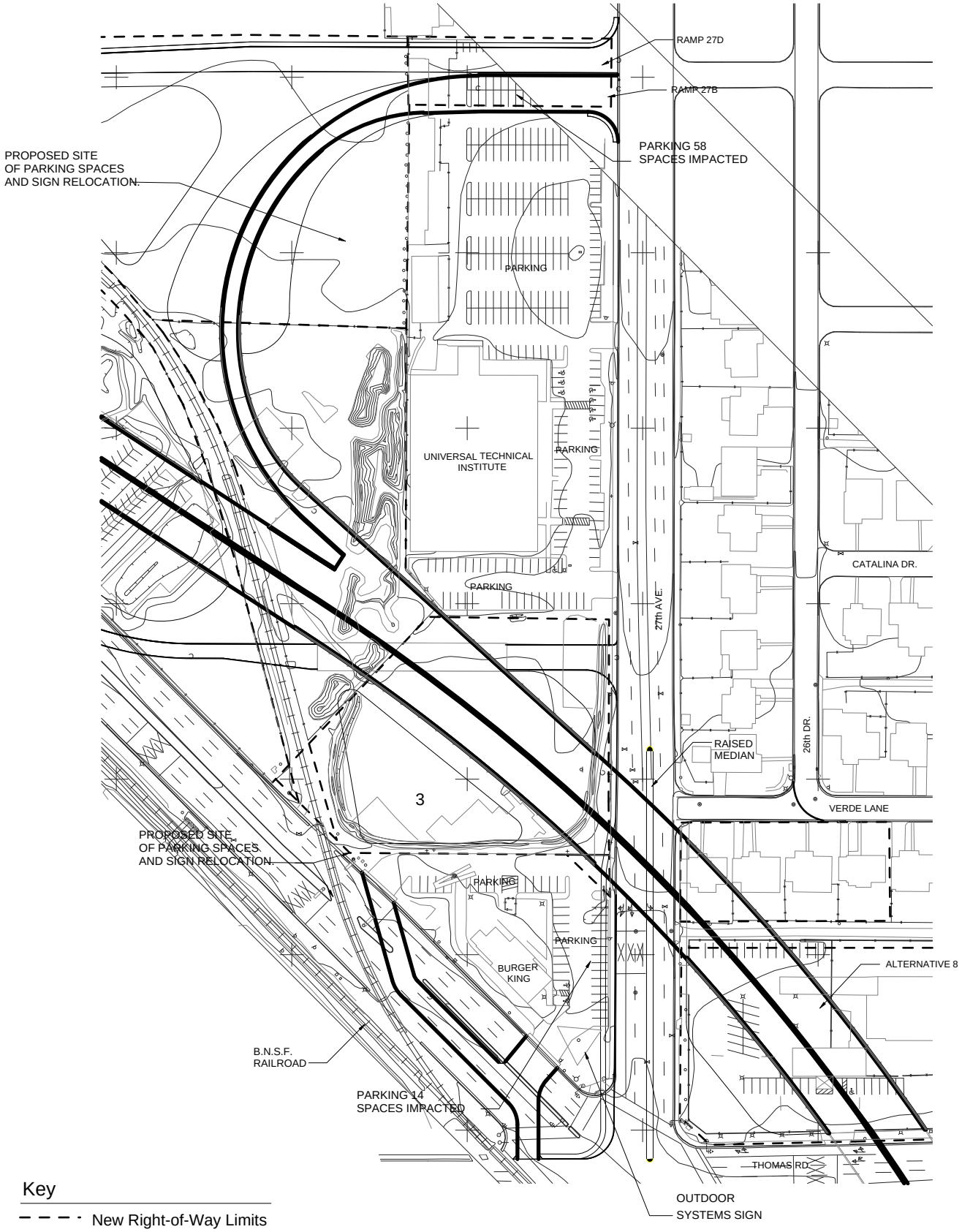


Figure 12. UTI and Burger King Parking Relocation Detail

the BNSF railroad spur; 3) maintenance of at least two lanes in each direction on Grand Avenue, except during final tie-ins, 4) maintenance of traffic flow during bridge construction and utility relocations.

Closures along Grand Avenue, Thomas Road, and 27th Avenue may be necessary during final tie-ins of the new grade-separation facility with Grand Avenue, and placement of bridge components. Closures would occur at night or during weekend hours. If detours would be used, these routes would be established and evaluated during final project design. ADOT would notify and coordinate with RPTA prior to any closures and detours.

F. Utilities

The existing utilities within the project area include Salt River Project (SRP) Irrigation, Arizona Public Service (APS) overhead and underground power lines and street lighting, US West telephone, Southwest Gas (natural gas main),MCI Worldcom, Phoenix Pest Control monitoring wells, Cox Cable, and the City of Phoenix's water lines, storm drains, sewer lines, and traffic signals. The majority of the utilities are located underneath Grand Avenue, 27th Avenue, and Thomas Road, although a few are located within the BNSF right-of-way. In addition, a US West cellular tower is located on the north side of Grand Avenue approximately 500 feet from the intersection.

APS overhead power and Cox Cable above ground lines along the north side of Thomas Road and the east side of 27th Avenue would be relocated. The Southwest Gas distribution lines and ADOT storm drains located in Grand Avenue would be removed. The contractor would provide notice to utility customers prior to any disruption of service, if applicable. In addition, the BNSF flashers and utility boxes located at the spur track crossing on Grand Avenue would be removed. BNSF Railway flashers and warning signs would be installed by BNSF at the at-grade crossing locations along Ramps 27 C and D.

G. Other Features

Two new traffic signals would need to be constructed within the project area. One would be located at the northwest-bound ramp terminals at 27th Avenue. The other traffic signal would be a partial signal and would control traffic on the southeast-bound off-ramp and southbound 27th Avenue. Northbound travel on 27th Avenue would be uninterrupted through this partial traffic signal. If northbound motorists would be required to stop at the traffic signal it could cause traffic delays or operational problems at remaining Thomas Road and 27th Avenue intersection. In addition, no left turn or northbound access would be allowed from the southeast-bound off-ramp to 27th Avenue.

Street lighting would be provided on both sides of the new Grand Avenue. Lighting would be designed to City of Phoenix standards. APS would install, operate, and maintain the lights. An Interagency

Government Agreement (IGA) would be needed for the street lighting between the City of Phoenix and ADOT.

The sidewalk along the northeast side of Grand Avenue between I-17 and 27th Avenue would need to be removed and rerouted to connect to the sidewalk on the south side of Thomas Road. No sidewalk would be provided on the overpass. The sidewalk along Grand Avenue northwest of Thomas Road would be relocated along the north side of Ramp 27D.

All embankment slopes, detention basins, and disturbed public right-of-way would be covered with decomposed granite and low-water use plants. Portions of the existing Grand Avenue would remain as a utility corridor. The remainder of the existing alignment would be removed, re-graded and landscaped. Trees would be used to screen the detention basins from motorists view. Embankment slopes would be 3:1 maximum, but consideration should be given to flatten these to 4:1 within high visibility areas.

H. Design Exceptions

A comparison of the geometric design elements of the existing Grand Avenue at 27th Avenue and Thomas Road indicated that non-conformance was identified in existing lane widths and cross slopes, but have not proven to decrease functionality of the roadway. A design exception would be necessary to taper to the existing roadway sections located on Grand Avenue on the southeast end of the project area. In addition, horizontal sight distances along curves would require design exceptions due to the proposed height of the inside concrete barrier. These design exceptions still address the operational and capacity needs of the proposed roadway or structure.

IV. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following information describes the affected environment or existing conditions within the project area, and presents the potential effects of the preferred alternative. Measures to avoid or minimize impacts have also been identified for each component of the environment and are summarized in the mitigation measures on page v of this document. Agency coordination and public involvement activities undertaken as part of the environmental process are presented in Chapter VI. For this document, the north-south and east-west limits of the project area are approximately one-half mile on either side of the centerline of the existing Grand Avenue at the 27th Avenue and Thomas Road intersection. Visual or scenic resources identified may extend beyond these limits. The figures in this document depict a graphic representation of the width of the project area for illustrative purposes only.

The potential environmental impacts of the proposed improvements were evaluated based on both the context of the effects on the project area and the intensity or severity of impacts as defined in the Council on Environmental Quality's Regulations. The following table summarizes the environmental impacts of the proposed project actions.

Table 4. Results of Environmental Analysis

Environmental Consideration	Result of Alternative Evaluation
Ownership, Jurisdiction, and Land Use	No substantial impact
Social and Economic Considerations	No substantial impact
Title VI/Environmental Justice	No substantial impact
Cultural Resources	No substantial impact
Section 4(f) Resources	No impact
Air Quality	No substantial impact
Noise	No substantial impact
Landscape/Vegetation Removal/Noxious Weeds	No substantial impact
Vegetation and Wildlife	No impact
Threatened, Endangered, and Sensitive Species	No impact
Visual Resources	No substantial impact
Drainage and Floodplain Considerations	No impact
Water Resources, Section 404, NPDES	No impact
Materials Sources	No substantial impact
Construction Debris Disposal	No impact
Hazardous Materials	No impact
Secondary/Cumulative Impacts	No substantial impact

A. Ownership, Jurisdiction, and Land Use

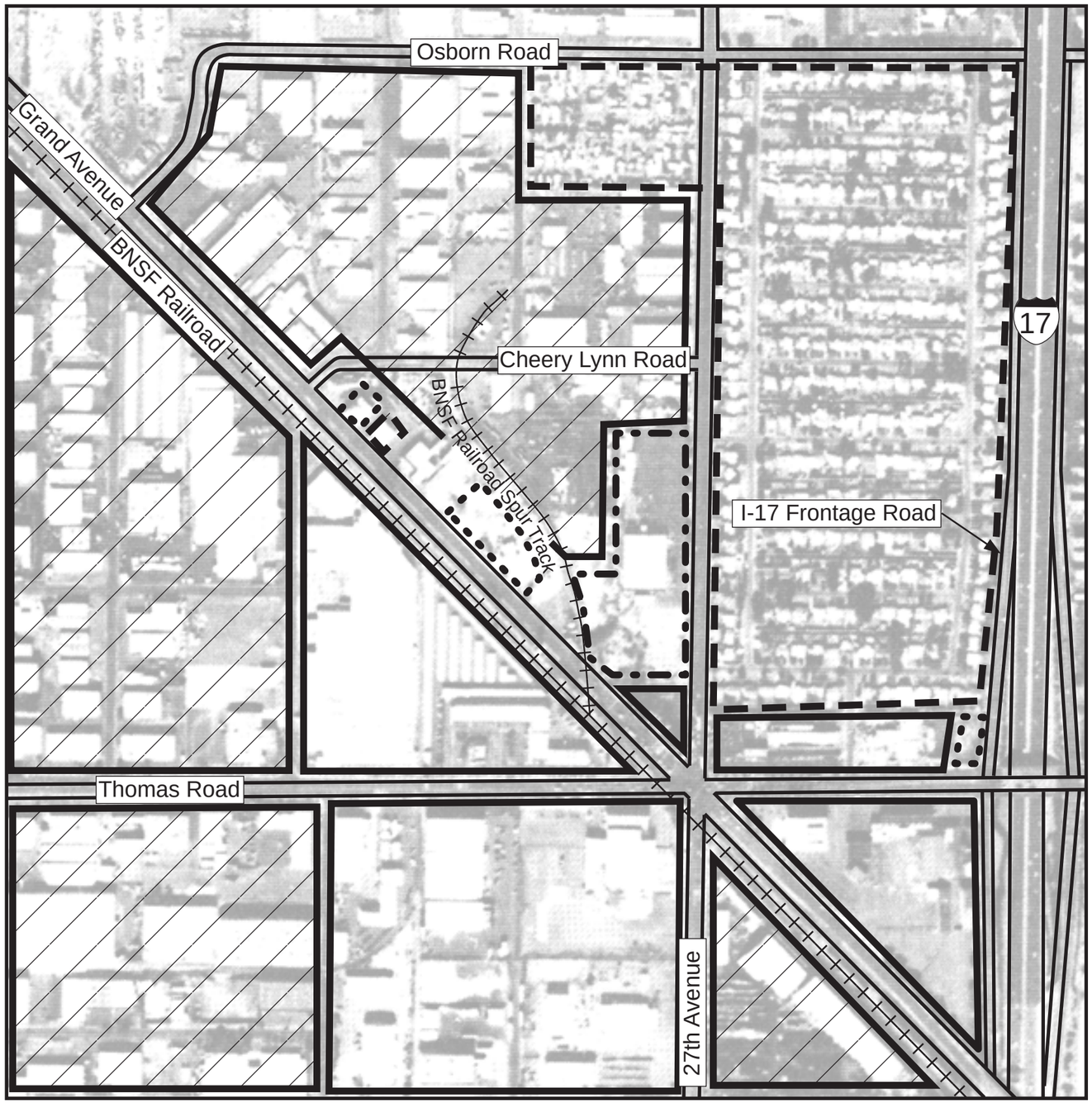
For the purposes of this assessment, land ownership is identified in terms of public or private ownership. Land ownership within the project area is primarily privately owned. Jurisdiction implies the authority to regulate all land uses. The project area is located within the jurisdictional boundaries of the City of Phoenix.

Land use is a representation of the existing occupation and/or a physical use of land. Land uses within the proposed project area were determined by field observations, and information provided in the MIS (ADOT 1998). Existing land uses within the corridor include residential, commercial, industrial, transportation, and vacant (refer to Figure 13).

Residential land uses are concentrated north of the intersection between 27th Avenue and I-17. These residences are currently being accessed from Thomas Road and 26th Avenue, and also from 27th Avenue via Verde Lane or Osborn Road. Commercial and Industrial land uses within the project area include Ugly Duckling Auto Sales, Burger King, Furniture Sales, US Filter, Allied Tube and Conduit, Electric Rewinding Company, McDaniel's Sign, National Dry Goods Company Incorporated, and American Plumbing Supply (refer to Figure 14). Industrial land uses within the project area are primarily located northwest of the 27th Avenue/Thomas Road intersection, while commercial businesses are distributed throughout the area.

Other land use designations within the project area include transportation and vacant. Transportation land uses includes the BNSF mainline and spur track, the local residential and commercial connector streets, and the arterial streets such as 27th Avenue, Grand Avenue, and Thomas Road. The BNSF spur track, extends from the main line located on the southwest side of Grand Avenue to commercial/industrial businesses located along Cheery Lynn Road. A vacant lot is currently located at the southwest corner of the 27th Avenue and Thomas Road intersection, although this lot is the proposed site for a convenience store and gas station. Other vacant or abandoned parcels within the project area include the gas station located at the corner of Cheery Lynn Road and Grand Avenue, which will be partly impacted by the proposed alignment. According to the City of Phoenix General Plan the entire project area is designated as Industrial/Business Park for future planning purposes.

The preferred alternative would require approximately 18.7 acres of land for construction of the proposed improvements. These improvements would require a total of 10 full-takes and 5 partial-takes, which would affect 15 property owners within the project area. These takes include residential, industrial and vacant land use parcels. Because 27th Avenue would need to be widened to the west to accommodate a right-turn lane, two through lanes, and dual left-turn lanes, 14 parking spaces at Burger King and the Outdoor Systems' sign would be acquired for new right-of-way. In addition, as a result of the proposed northwest-



Key

- Commercial
- Public/Quasi Public
- Residential
- Vacant
- Industrial
- BNSF Railroad

Image Source: Landiscor aerial information, Phoenix

Figure 13. Existing Land Use

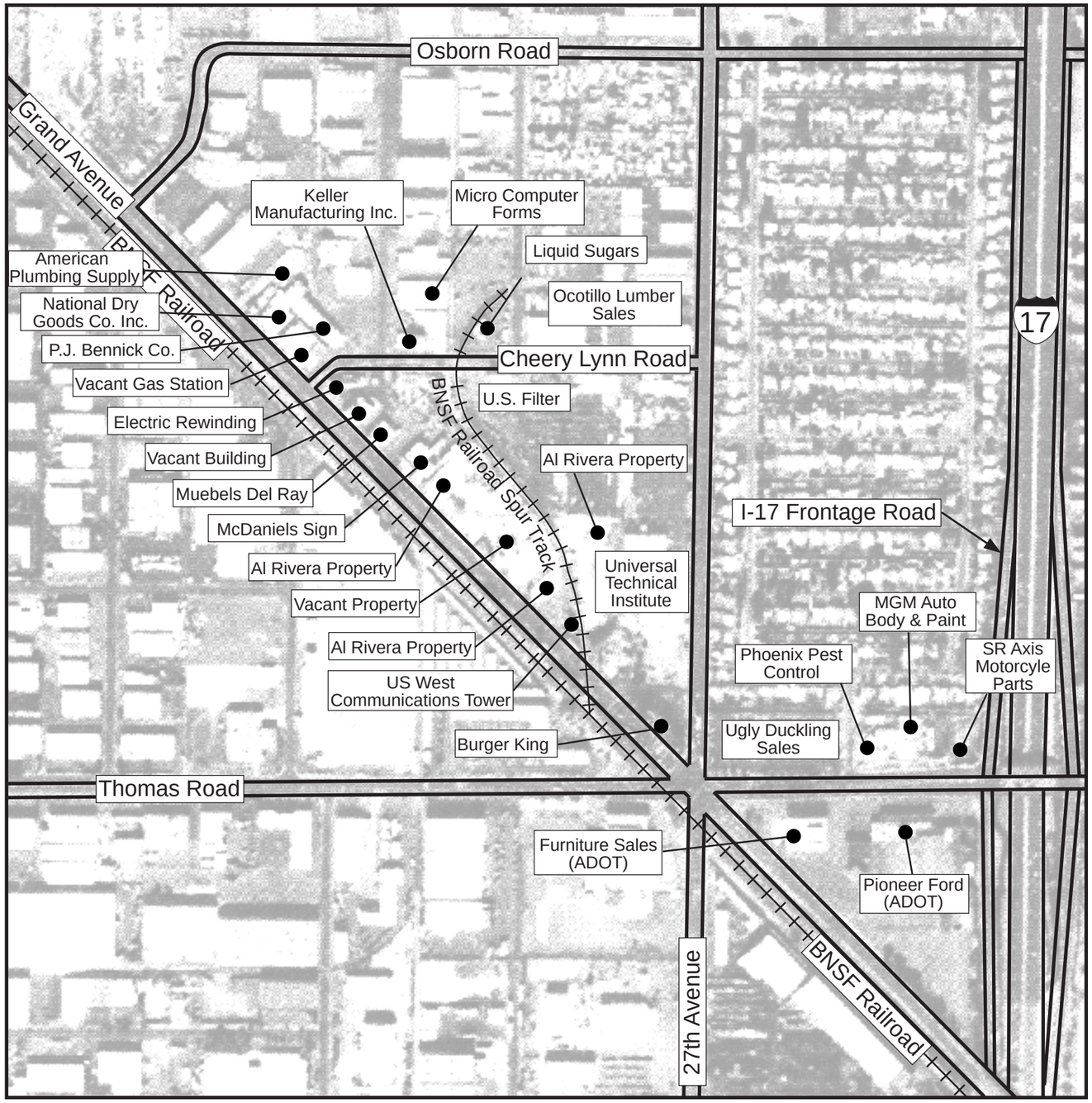


Image Source: Landiscor aerial information, Phoenix

Key

BNSF Railroad

Figure 14. Project Area Commercial Businesses

bound off-ramp location, Universal Technical Institute would lose 58 parking spaces (refer to Figure 12). Details of the parking space replacement mitigation and access changes to Burger King and Universal Technical Institute would be evaluated and made available during the final project design phase.

The parcels required for new right of way would be acquired from private property owners. Property owners would be compensated at fair market value for property acquired for project right-of-way in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act,* as amended in 1987. Existing parking spaces and the commercial billboard eliminated would be replaced, although final details would be made available during the final project design phase. Existing and future land uses would not be prohibited from continuing as designated in the City of Phoenix General Plan. Therefore, no substantial impacts to land uses, jurisdiction, or ownership would be anticipated.

B. Social and Economic Considerations

Grand Avenue is a multi-modal transportation corridor. Although private automobile travel is the primary transportation use within the corridor, bus, pedestrian, and bicycle travel also occur. Valley Metro provides routes along each of the three streets. The RPTA Yellow Line, located along Grand Avenue, provides ridership between downtown Peoria and the State Capitol, while also connecting to other designated north-south or east-west routes such as the RPTA Green Line and Route 27. The RPTA Green Line and Route 27 are designated routes for Thomas Road and 27th Avenue, respectively. Ridership information for May 1998 shows a daily weekday ridership of 1,919 for the Yellow Line, 9,910 for the Green Line, and 2,716 for Route 27.

There are three RPTA bus stops along Grand Avenue that would be affected by the proposed improvements. Buses on the RPTA Yellow Line would be required to exit Grand Avenue to make transfers between the Green Line (Thomas Road) and Route 27 (27th Avenue). A new bus stop is being considered on the southeast-bound on-ramp and would be studied further during final design. ADOT would coordinate with RPTA during final project design to establish temporary bus stops during construction and to evaluate potential new bus stop locations.

The Grand Avenue project would improve pedestrian access to each side of the intersection and transfers between the Green Line (Thomas Road) and Route 27 (27th Avenue) by eliminating the delay time experienced by a six-legged intersection. According to the MIS, pedestrian and bicycle traffic counts indicate that 71 pedestrians or cyclists were observed crossing the intersection during the morning peak hour traffic (ADOT 1998). No other pedestrian surveys were identified during preparation of this document. Reducing intersection delay times and maintaining pedestrian walkways would improve pedestrian travel.

New sidewalks would be provided as mentioned in Section III in accordance with the American with Disabilities Act.

On March 14, 2000 City of Phoenix voters approved a 0.4 percent sales tax increase to improve bus service and provide a rapid transit light rail system within the City of Phoenix, and that would also include planning for expansion into other cities of the metropolitan area. According to the November 2, 2000 Citizens Transit Commission (CTC) vote of 13 to 1, with 1 abstention, the CTC approved the planned route following along 19th Avenue at its closest location to 27th Avenue and Thomas Road. This initiative would also provide more buses and allow for additional bus routes throughout the city, although specific details of those routes were not available at the time of preparation of this document. There are currently no other known plans for any other multi-modal uses including bike paths, or trails within the project area.

The industrial and commercial businesses located within and/or near the project area afford employment opportunities to nearby residents, although many of the local residents likely commute to jobs elsewhere in the Phoenix Metropolitan Area. The proposed improvements would require the acquisition or partial take of four residences, three vacant parcels or buildings, and approximately seven commercial/industrial businesses within the project area. Fifteen property owners would be impacted. This removal and relocation of businesses and residents is not anticipated to substantially impact the local economic center point and overall economic vitality of the project area. Numerous other commercial/industrial businesses would remain. In addition, the vacant parcel located on the southwest corner of Thomas Road and 27th Avenue is planned for use as a convenience store and gas station. Planning documents still indicate that this area would be available for future industrial/commercial uses.

Short-term beneficial impacts directly related to construction include the potential local employment opportunities as part of the construction workforce. During construction some workers may purchase food and other commodities, and generate revenues for the nearby businesses. Therefore, the proposed project could beneficially impact local residents and nearby businesses during construction.

Because the proposed Grand Avenue grade-separation would be aligned northeast of the existing alignment, temporary traffic delays would occur during construction. Grand Avenue, Thomas Road, and 27th Avenue may be closed during construction for short periods, but the duration of the closures and detour routes have not been determined. Any detour routes used during these closures would be evaluated during final design. Access control and traffic control plans would address construction-related safety and access problems by maintaining access to businesses and residences during construction. The contractor would notify the local residents, property owners, and local businesses 14 days prior to any ground disturbing activities. In addition, ADOT District Construction Office would notify and coordinate with RPTA prior to any ground disturbing activities if closures or detours are necessary that could impact bus travel to establish alternate bus routes and temporary bus stops. Other short-term construction-related

impacts would include increased noise impacts, traffic delays as mentioned in Section III, and visual impacts from typical construction-related activities, although these impacts are not anticipated to be substantial.

After completion of the Grand Avenue grade-separation, motorists seeking access from Grand Avenue to the remaining businesses at the 27th Avenue and Thomas Road intersection would be required to utilize off-ramps and connector streets. This out-of-direction travel would require longer travel time and could inconvenience some motorists, although this is anticipated to be minimal because of the net gain of the reduction in traffic congestion and delay times.

In summary, the proposed improvements would alter the existing RPTA Grand Avenue Yellow Line as it currently operates today. Transferring passengers between the RPTA Yellow Line, and Route 27 or the Green Line would be more difficult, although ADOT would coordinate and evaluate the removal and relocation of bus stops to minimize or eliminate impacts to RPTA bus passengers. RPTA indicated in early planning stages at the 51st Avenue and Bethany Home Road intersection Agency Scoping Meeting for the proposed improvements to that intersection, that RPTA would be able to work around these intersection improvements. Short term construction-related impacts bus impacts would be coordinated between ADOT and RPTA to minimize impacts and coordinate/plan temporary bus traffic detour routes and bus stops. No other multi-modal transportation uses are anticipated to be impacted by the proposed improvements. The residences, commercial/industrial businesses, and vacant parcels that would be removed and relocated would not impact the economic vitality of the project area, or disrupt neighborhood continuity.
Overall, the proposed improvements would improve the operation and functionality of this segment of Grand Avenue. It would also decrease delay times and congestion at the 27th Avenue and Thomas Road intersection, which would improve ingress and egress to businesses and local residences. As a direct result of the project, pedestrian delay times at the remaining 27th Avenue and Thomas Road intersection would be greatly improved, which would improve the transfer of bus passengers between these two routes. Therefore, the proposed project would not substantially impact access to businesses or other construction-related impacts, economic vitality, or multi modal transportation or pedestrian uses within the project area.

C. Title VI of the Civil Rights Act of 1964/Environmental Justice

Under Title VI of the Civil Rights Act of 1964, Federal agencies are required to ensure that no person is excluded from participation in, denied benefits of, or subjected to discrimination under any program or activity receiving Federal financial assistance on the grounds of race, color, religion, national origin, sex, age, or disability. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994, requires

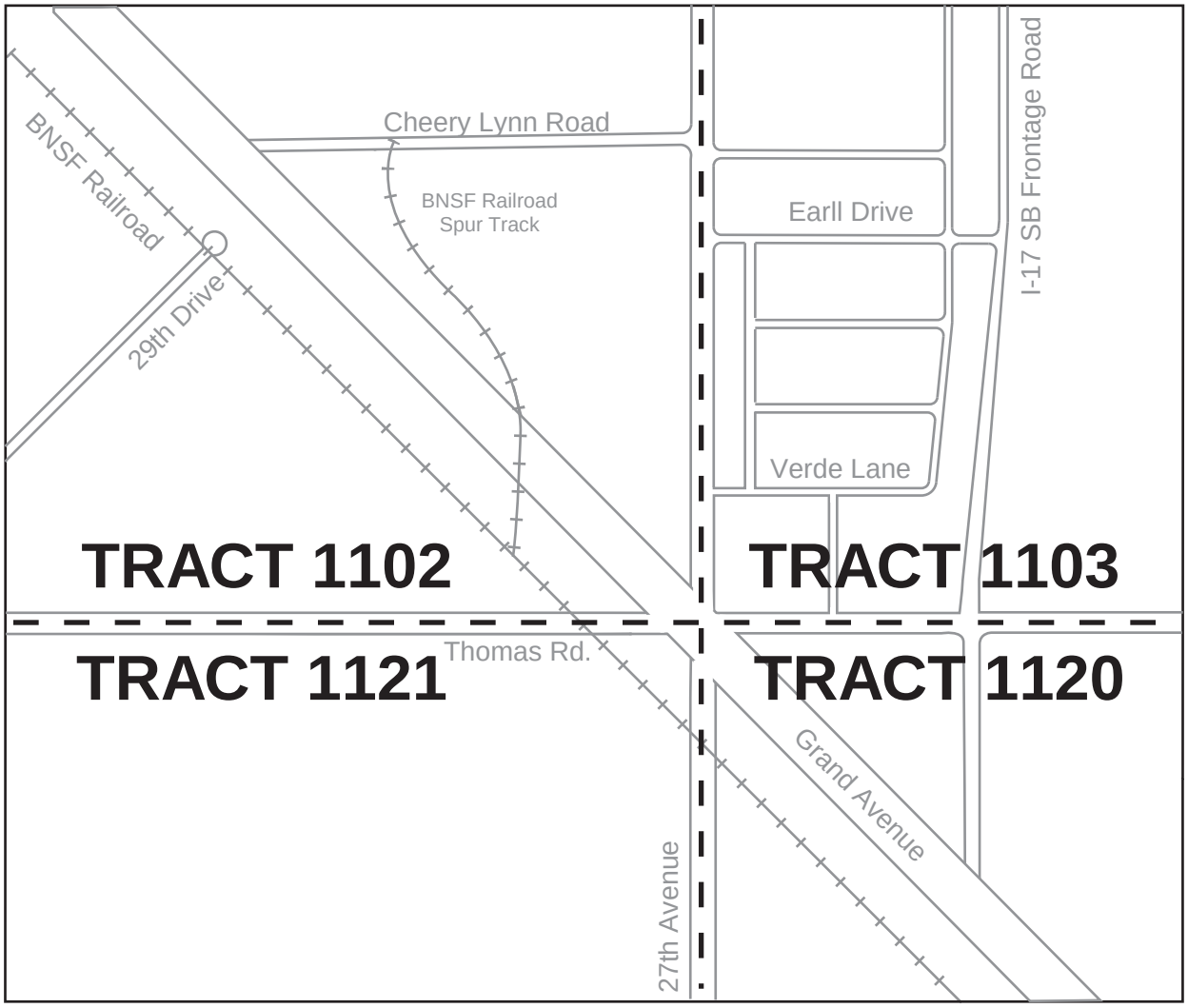
Federal agencies to identify, and address as appropriate, disproportionately high and adverse effects on minority and low-income populations.

To be consistent with the requirements of Title VI and Environmental Justice, the demographic characteristics of the population of the project area were examined to determine if minority and low-income populations would be disproportionately affected by the proposed project. Minority racial populations as defined in the U.S. Census include the following racial categories: African American, American Indian/Eskimo and Aleut (Native American), Asian and Pacific Islander, and "other race." In addition, the category "Hispanic" was used for all Hispanics regardless of race, even for those Hispanics who identified themselves as "white."

The MAG 1995 Special Census for Maricopa County and the U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population and Housing are used to compare and contrast the demographic and economic characteristics of the project area with those of the City of Phoenix and Maricopa County. Census tracts are small, relatively permanent statistical subdivisions of a county, and do not cross county boundaries. Block groups, as used in this document, are even smaller statistical subunits of census tracts (refer to Figure 15). For this document, block groups are used as the smallest level of census resolution representing 1990 census data (refer to Figure 16). Enumeration districts (EDs) are similar to block groups but reflect information from the 1995 Special Census for Maricopa County (refer to Figure 17). Both 1990 and 1995 census data are reported in the following tables (Tables 5, 6, 7, 8, 9) in order to convey the most recent statistical numbers for the smallest geographic area. The statistics reported may extend outside the project area; therefore, the exact population and demographic characteristics of the project area may vary from these data. The shaded numbers in each of the following tables represent those populations that are notably higher when compared to the City of Phoenix and/or Maricopa County.

1. Race

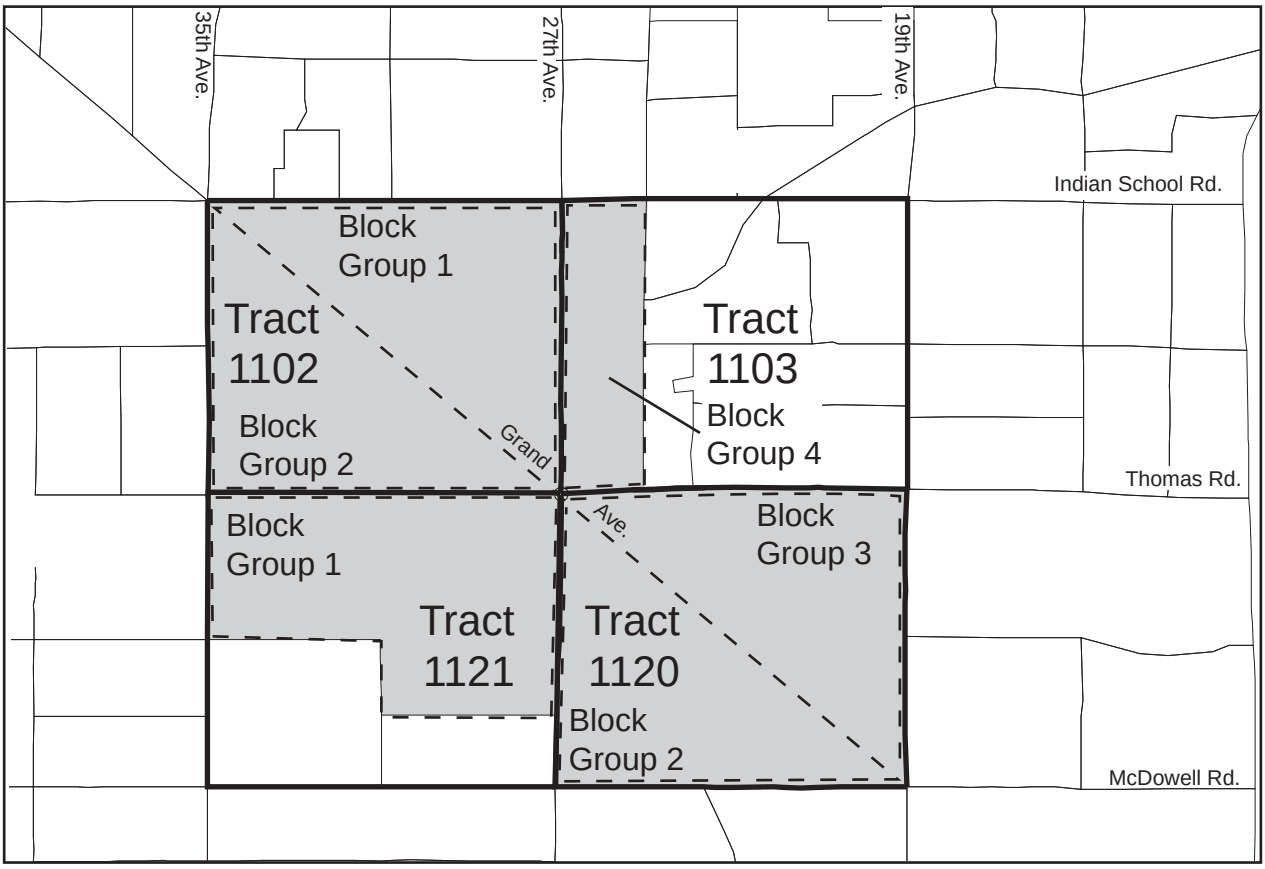
According to the MAG 1995 Special Census data, the study area is mostly white and/or Hispanic. Hispanic persons comprise 48.3% of the study area (refer to Table 5). Hispanic populations in ED 472 (31.7%), ED 478 (58.4%), ED 671 (43.5%), and ED 674 (67.3%) are substantially higher than both the City of Phoenix (26.4%) and Maricopa County (20.5%).



Key

Tract Boundary

Figure 15. Census Tracts



Key

Block Group Limit

Tract Limit

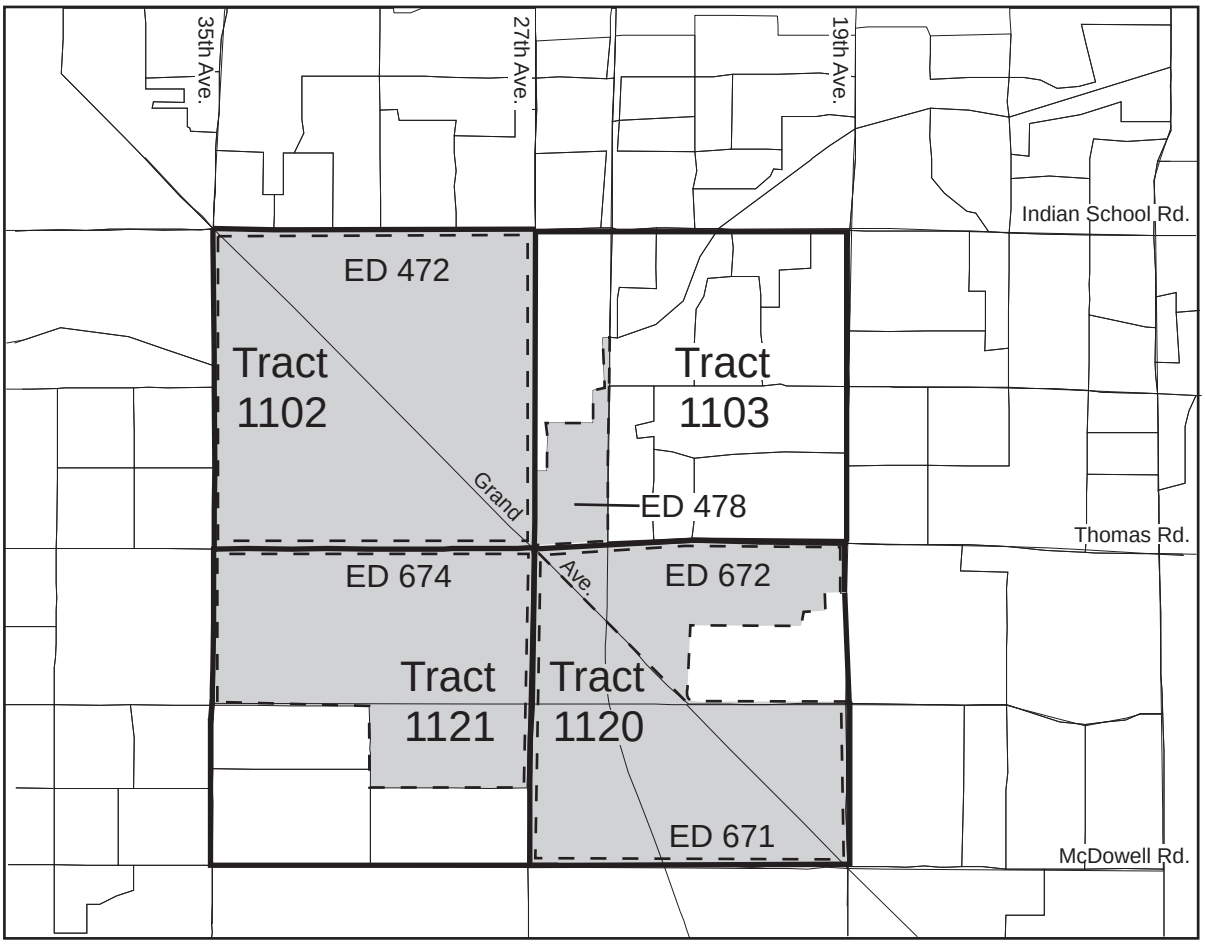
Smallest Census Unit for Study Area

Mile

0.0 0.5 1.0

NORTH

Figure 16. Block Groups



Key

ED Enumeration Districts

– – Enumeration District Limit

Tract Limit

Smallest Census Unit for Study Area

Mile

0.0 0.5 1.0

NORTH

Figure 17. Enumeration Districts

Table 5. 1995 Racial Demographics													
Area	Total Population	White		African American		Native American		Asian		Other		Hispanic	
		#	%	#	%	#	%	#	%	#	%	#	%
Tract 1102, ED 472	398	301	75.6	10	2.5	22	5.5	1	0.3	64	16.1	126	31.7
Tract 1103, ED 478	692	460	66.5	30	4.3	25	3.6	28	4.1	149	21.5	404	58.4
Tract 1120, ED 671	584	336	57.5	13	2.2	7	1.2	1	0.2	227	38.9	254	43.5
Tract 1120, ED 672	604	472	78.2	12	2.0	7	1.2	15	2.5	98	16.2	116	19.2
Tract 1121, ED 674	1050	282	26.9	23	2.2	21	2.0	21	2.0	703	67.0	707	67.3
All EDs	3328	1851	55.6	88	2.6	82	2.5	66	2.0	1241	37.3	1607	48.3
City of Phoenix	1,149,417	835,860	72.7	59,473	5.2	20,405	1.8	22280	1.9	211399	18.4	303084	26.4
Maricopa County	2,551,765	2019556	79.1	93,358	3.7	45,843	1.8	51231	2.0	341777	13.4	522487	20.5

Source: Maricopa Association of Governments, 1997.

2. Age 60 Years and Over

The MAG 1995 Special Census data indicate that the percentage of people greater than or equal to 60 years of age within the study area ranges between 9.1% and 27.3% (refer to Table 6). Both ED 472 (18.3%) and ED 672 (27.3%) have higher percentages than those of the City of Phoenix (12.4%) and Maricopa County (16.1%). Conversely, ED 478 (9.1%) and ED 674 (9.2%) percentages are lower than the City of Phoenix and Maricopa County, and ED 671 is relatively the same.

Table 6. 1995 Percentage of Population Greater Than or Equal to 60 Years of Age			
Area	Total Population	> 60 Years of Age	
		#	%
Tract 1102, ED 472	398	73	18.3
Tract 1103, ED 478	692	63	9.1
Tract 1120, ED 671	584	75	12.8
Tract 1120, ED 672	604	165	27.3
Tract 1121, ED 674	1050	97	9.2
All EDs	3328	473	14.2
City of Phoenix	1,149,417	142,229	12.4
Maricopa County	2,551,765	411,213	16.1

Source: Maricopa Association of Governments, 1997.

3. Low-Income Population

The 1995 Special Census data indicate that while all tracts in the project area are higher than the City of Phoenix and Maricopa County, Tract 1102 (36.1%) and Tract 1121 (38.5%) contain the highest percentages of people living below poverty within the study area (refer to Table 7). The overall tract average (22.5%) is approximately twice that of Phoenix (13.2%) and the County (10.4%).

Table 7. 1995 Percentage of Households Living Below Poverty			
Area	Households With Income Reported	Below Poverty	
		#	%
Tract 1102	133	48	36.1
Tract 1103	1747	330	18.9
Tract 1120	525	78	14.9
Tract 1121	530	204	38.5
All Tracts	2935	660	22.5
City of Phoenix	260,125	34,332	13.2
Maricopa County	608,777	63,392	10.4

Source: Maricopa Association of Governments, 1997.

4. Disabled Persons

The 1990 Census data indicate the percentage of people living in Maricopa County who claimed a mobility disability or a self-care disability was 13.0%. Tract 1102, Block Groups 1 and 2 were substantially higher than the City of Phoenix and Maricopa County (refer to Table 8). The remaining block groups in the study area, except for Tract 1120, Block Group 2, were about the same when compared to Phoenix and the County. Tract 1120, Block Group 2 does not have any residents within its boundaries and therefore has a representative percentage of 0.0%.

Table 8. 1990 Percentage of Population with Mobility Disability			
Area	Population > 16 Years of Age	Mobility Disability	
		#	%
Tract 1102, Block Group 1	174	73	42.0
Tract 1102, Block Group 2	115	44	38.3
Tract 1103, Block Group 4	652	108	16.6
Tract 1120, Block Group 2	0	0	0.0
Tract 1120, Block Group 3	1488	191	12.8
Tract 1121, Block Group 1	689	137	19.9
All Block Groups	3118	553	17.7
City of Phoenix	732,797	97,239	13.3
Maricopa County	1,595,853	207,610	13.0

Source: U.S. Department of Commerce, Bureau of the Census, 1992.

5. Female Head of Household

The 1990 Census data indicate that the percentage of female head of household ranges from 0.0% to 18.8 % in the study area (refer to Table 9). Tract 1103, Block Group 4 (18.8%) and Tract 1121, Block Group 1 (16.2%) are higher than the City of Phoenix (11.3%) and Maricopa County (9.9%). The study area average is about the same as Phoenix, but slightly higher than the County.

Table 9. 1990 Percentage of Female Head of Household			
		Female Head of Household	
Area	Total Households	#	%
Tract 1102, Block Group 1	97	12	12.4
Tract 1102, Block Group 2	75	0	0.0
Tract 1103, Block Group 4	345	65	18.8
Tract 1120, Block Group 2	0	0	0.0
Tract 1120, Block Group 3	757	57	7.5
Tract 1121, Block Group 1	291	47	16.2
All Block Groups	1565	181	11.6
City of Phoenix	370,119	41,758	11.3
Maricopa County	808,162	79,646	9.9

Source: U.S. Department of Commerce, Bureau of the Census, 1992.

The proposed project has been developed in accordance with the Civil Rights Act of 1964 (Title VI), as amended by the Civil Rights Act of 1968 (Title VIII), and conforms to the requirements of the Americans with Disabilities Act of 1990. Public comments on the proposed alternatives were solicited as part of the EA process. In general, the public supported construction of a grade-separated bypass to eliminate the existing six-legged intersection and improve the function and operation of Grand Avenue. Refer to Section VI for a description of the public involvement and input received at information meetings.

According to FHWA Interim Region 9 Guidance (May 1997), if the population is dispersed and not an identifiable minority or low-income community, then it is not considered a "distinct" group and there would be no adverse effect on minority or low-income populations. A distinct population of Hispanics occurs within the study area in Tract 1102, ED 478 and Tract 1121, ED 674 (refer to Table 5 and Figure 15). As defined by Executive Order 12898, the proposed improvements to Grand Avenue at the 27th Avenue and Thomas Road intersection would not disproportionately impact any distinct populations or divide neighborhoods, or prevent any of these populations from accessing local schools, services, or other community functions.

Property owners would be compensated at fair market value for property acquired for project right-of-way in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act*, as amended in 1987. The proposed project would not have a disproportionate effect, either direct or indirect, upon minority, low-income, elderly, female head of household, or disabled populations within the project area.

D. Cultural Resources

A number of Federal and State Acts have been established to provide protection for cultural resources and to ensure "future generations" a genuine opportunity to appreciate and enjoy the rich heritage of our Nation (Public Law 89-665). Cultural resources (historic properties) must be evaluated under each of these Acts to ensure adequate protection of our cultural heritage. In addition to acts that protect historic properties, the American Indian Religious Freedom Act, 1978 (AIRFA), guarantees access to religious or sacred sites that are located on Federal land.

Historic properties include prehistoric and historic districts, sites, buildings, structures or objects included in or eligible for inclusion in the National Register of Historic Places (NRHP). Historic properties may be eligible for nomination to the NRHP if they "...possess integrity of location, design, setting, materials, workmanship, feeling and association..." and if these resources are either associated with (A) significant themes in history, or (B) significant persons in history, or if the (C) embody distinctive construction characteristics or works of a master, or (D) have the potential to yield information important to history or prehistory.

Four cultural resources surveys have occurred within the project area. Two archaeological surveys were conducted in 1989 and 1993. An historic building survey, which covered a portion of the current project area, was completed in 1992 (Woodward 1993). A Class III intensive pedestrian survey of the entire project area was completed by ADOT. The results of this survey are reported in *A Cultural Resources Survey Of Four Intersections Along Grand Avenue (27th Avenue And Thomas Road, 43rd Avenue And Camelback Road, 51st Avenue And Bethany Home Road, And 91st Avenue And SR 101 Loop), Maricopa County, Arizona* (Grafil 2000).

Two archaeological sites (one prehistoric and one historic), eleven structures, four canals, and two historic transportation alignments have been identified within the project area. A large prehistoric Hohokam village site (Las Colinas) is partly located within the proposed construction limits of the Grand Avenue at 27th Avenue and Thomas Road project. The site would be impacted during construction. Portions of this site have been tested and excavated prior to construction/improvements to I-10 in the 1980's. At that time Las Colinas was eligible for inclusion on the NRHP. The Class III Pedestrian Survey and cultural report for this project recommends the portion of Las Colinas within the proposed project area eligible for inclusion on the NRHP under Criterion D. Because the proposed project would impact the site, ADOT would complete archaeological site testing, and data recovery (if necessary) prior to construction as indicated in the Programmatic Agreement (PA) described below. The historic archaeological site consists of a group of concrete slabs, and is recommended not eligible for inclusion on the NRHP.

The eleven structures identified in the project area consist of eight ranch-style homes, one Spanish Colonial Revival House, one concrete block construction structure, and one property that is now demolished. All eleven structures are recommended ineligible for inclusion on the NRHP. Four canals (three prehistoric and one historic) have been plotted as crossing the project area. These canal locations are only found in historical records and were not identified during field surveys. If the canals are discovered during construction, the contractor would stop work immediately at that location, take all reasonable steps to secure the preservation of the feature(s), and notify the ADOT Engineer. ADOT would notify the appropriate agency(ies) to evaluate the substantiality of the resource. Grand Avenue and the Burlington Northern Santa Fe Railroad are both historic transportation alignments. However, both alignments have been substantially modified since their original construction, and are recommended ineligible for inclusion on the NRHP.

The cultural resource report has been reviewed by the SHPO. A concurrence letter was signed and dated November 7, 2000. This letter stated that SHPO concurs with all recommended eligibility determinations for the proposed undertaking. In addition, a PA has been prepared and executed to address this project and the other seven proposed intersection improvement projects within the Grand Avenue corridor (Refer to Appendix B). This PA provides a detailed agreement of survey, testing procedures, and if necessary, data recovery including documentation of historic buildings and structures. The PA ensures that ADOT and FHWA adhere to all laws as defined in 36 Code of Federal Regulations (CFR) 800.14 (1) (b) (v). Therefore, testing and data recovery of any prehistoric or historic sites, if necessary, would appropriately mitigate any impacts to cultural resources at 27th Avenue, Thomas Road, and Grand Avenue and therefore, would not substantially impact cultural resources within the proposed project area.

According to *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction*, Section 107.06 Archaeological Features (2000 Edition), if previously unidentified cultural resources are discovered during construction, the contractor would stop work immediately at the location, take all reasonable steps to secure the preservation of those features, and notify the ADOT Engineer. ADOT would, in turn, notify the appropriate agency(ies) to evaluate the substantiality of the resource.

E. Section 4(f) Resources

Section 4(f) of the US Department of Transportation Act of 1966 states that the FHWA "may approve a transportation program or project requiring publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance, or land of a historic site of national, state, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if there is no prudent or feasible alternative to using that land and the program

or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting form the use" (49 U.S.C. 303).

A "use" of a Section 4(f) resource, as defined as in 23 CFR 771.135 (p) occurs: (1) when land is permanently incorporated into a transportation facility, (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes, or (3) when there is a constructive use of land. A constructive use of a Section 4(f) resource occurs when the transportation project does not incorporate land from the Section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. For example, a constructive use can occur when:

1. The projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource protected by Section 4(f).

2. The proximity of the proposed project substantially impairs aesthetic features or attributes or a resource protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the resource. An example of such an effect would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building, or substantially detracts from the setting of a park or historic site which derives its value in substantial part due to its setting; and/or

3. The project results in a restriction on access which substantially diminishes the utility of a significant publicly owned park, recreation area or historic site.

There are no parks, recreation areas or wildlife and waterfowl refuges or any substantial historic sites in the project area; therefore, there is no Section 4(f) involvement with the proposed construction of this project.

F. Air Quality

The 1990 Clean Air Act Amendments and the National Environmental Policy Act (NEPA) require that air quality impacts be addressed in the preparation of the environmental document. The level of effort utilized to evaluate these impacts may vary from a simplified description to a detailed microscale analysis depending on factors such as the type of environmental document to be prepared, the project location and size, the meteorology of the project area, the air quality attainment status of the area, and the State Air Quality Standards. The air quality analysis is documented in the technical report titled *Air Quality Study Report,* and is available from ADOT Environmental Planning Group upon request.

The project is located within the Maricopa County Non-attainment area for particulate matter less than 10 microns (PM_{10}), Carbon Monoxide (CO), and ozone (O_3). A project located within this Non-attainment area cannot cause or contribute to a violation or increase the frequency or severity of an existing CO or PM_{10} violation. In addition, the project is included in the approved Transportation Improvement Program (TIP) for ADOT's Fiscal Year 2001-2005, approved July 26, 2000, which conforms to the State Implementation Plan and the Federal Implementation Plan.

The State of Arizona has adopted the National Ambient Air Quality Standards (NAAQS) which were established to protect the public from air pollution related health hazards. Since the project is located in a non-attainment area, conformity requirements of the Clean Air Act apply to this project and project level modeling was required. In addition, a dust suppressant would be applied to all disturbed areas within the project area, which includes detention basins, embankments, and disturbed public right-of-way. No plant material or decomposed granite would be used for this project.

Future air quality impacts from the completed construction of the preferred build alternative, were analyzed using project-level models. The models follow the Environmental Protection Agency (EPA) guidelines. Idle and driving emission factors for the years 2000 and 2020 were obtained from the models. The modeling results show that the predicted maximum 1-hour and 8-hour CO concentrations at the intersections would be less than the NAAQS for carbon monoxide under all scenarios modeled (refer to Table 10). In spite of the increasing traffic, CO concentrations in the design year are expected to be less than the existing, because of improvements in motor vehicle emission control technology, and reduced delay times. Therefore, the preferred build alternative demonstrates conformity with NAAQS standards.

Table 10. Results of Air Quality Modeling

Scenario Modeled	Year	Maximum PM Peak Hour CO Concentration (ppm)[1]	
		1-hour Averaging Time	8-hour Averaging Time
NAAQS (acceptable limit)	N/A	35.0	9.0
Existing	1999	9.5	5.4
No Action Alternative	2020	8.8	5.0
Preferred Alternative	2020	8.5	4.8

[1] parts per million (ppm)

Short term impacts to CO may occur during construction due to the interruption of normal traffic flow. Efforts should be made to reduce queuing, especially during the peak travel hours. Short term impacts to particulate matter (PM_{10}) may also occur during the construction phase, but these impacts may be reduced through use of watering or other dust control measures. The contractor would adhere to Maricopa Rule 310 and 360 regarding fugitive dust emissions and new source performance standards, respectively, during

construction. In addition, the contractor would be responsible for obtaining any necessary asbestos permits for demolition of any structures, if applicable. Any detours necessary during construction, especially during the winter months, would avoid the air quality monitor located on the northwest corner of the Grand Avenue at 27th Avenue and Thomas Road intersection. Therefore, the proposed improvements would not substantially impact the regional or local air quality or violate the federal and state NAAQS standards.

G. Noise

An analysis of potential noise impacts was conducted within the proposed project area, pursuant to the Arizona Department of Transportation's "Noise Abatement Policy (NAP)", dated March 21, 2000 and in accordance with the provisions of Title 23 of the Code of Federal Regulations (CFR) Part 772 - Procedures for Abatement of Highway Traffic Noise and Construction Noise. FHWA's Noise Abatement Criteria (NAC) are delineated by land use categories and their associated acceptable exterior noise levels (in dBA[1]) (refer to Table 11).

Table 11. Noise Abatement Criteria
Hourly (h) A-Weighted Sound Level in Decibels (dBA)

Activity Category	Description	Leq(h)
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities are essential if the area is to continue to serve its intended purpose	57 dBA (Exterior)
B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals	67 dBA (Exterior)
C	Developed lands, properties, or activities not included in Categories A or B	72 dBA
D	Undeveloped lands	none

Source: Code of Federal Regulations, Title 23, Part 772

The Noise Abatement Criteria (NAC) land use categories known to occur within the project area are Categories B (residences) and C (commercial businesses). FHWA noise abatement guidelines state that abatement strategies should be considered when the L(eq) noise levels "approach" or exceed 67 dBA for a category B land use, or 72 for a category C land use. The "approach" threshold for the project area, as defined by ADOT, is 3 dBA. Therefore, approach as defined by the guidelines would be considered 64 dBA for a category B land use and 69 dBA for a category C land use, respectively. These guidelines also state that noise abatement should be considered when the noise levels "substantially exceed the existing noise

[1] dBA refers to the sound levels measured in decibels on the A-scale of a sound meter. A-weighting of decibels is related to how the human ear responds to different frequencies.

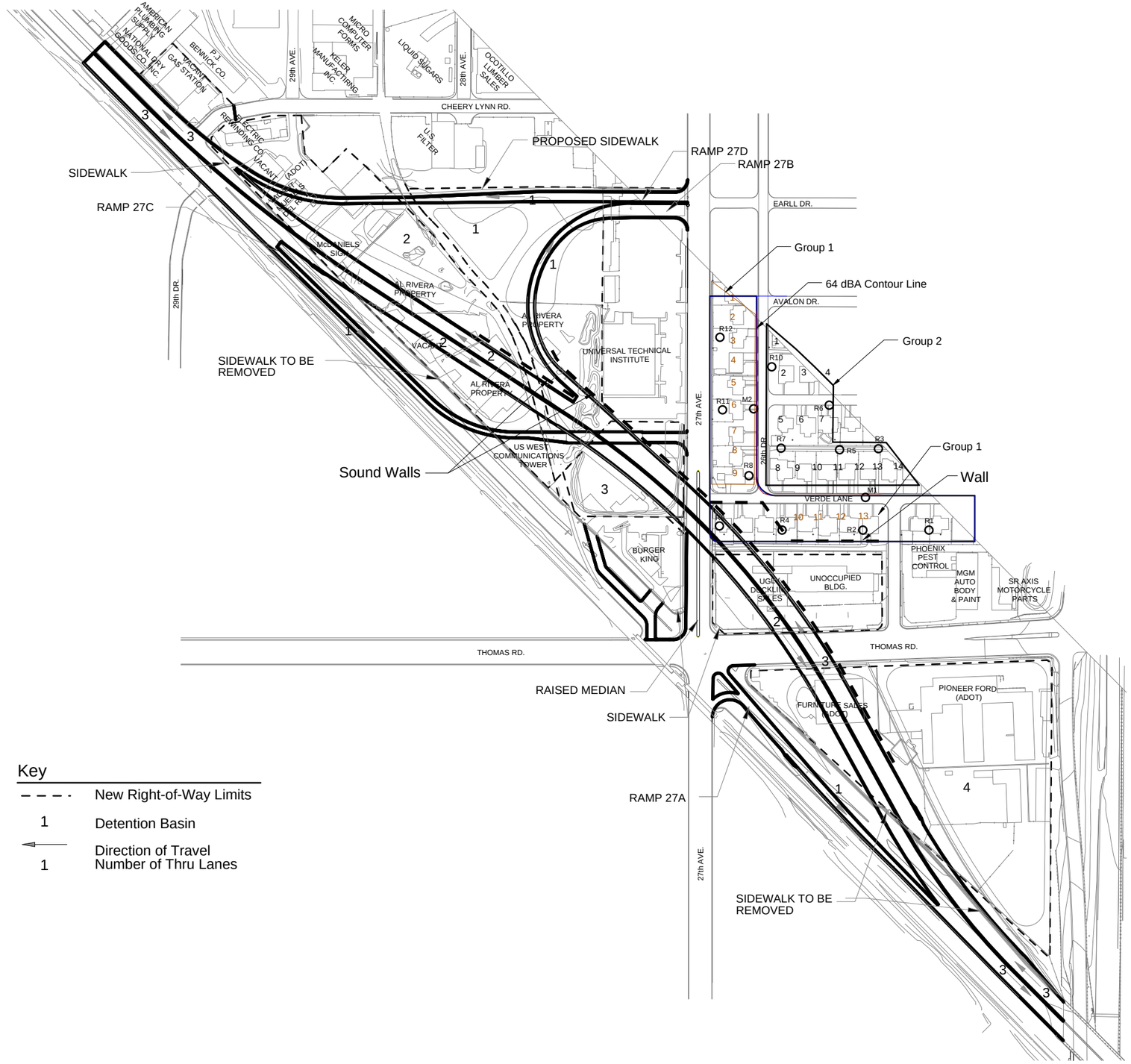


Figure 18. Noise Receptors and Monitor Sites

levels". This criterion as defined by ADOT's policy is the increase in the L(eq) of 15 dBA or more above existing noise levels. The ADOT policy does not provide for mitigation of commercial sites.

Initial noise measurements were taken at two locations within the residential area located in the northeast corner of Thomas Road and 27th Avenue. These sites, identified as Monitor Site (M)1 and M2 (refer to Figure 18 and Table 12), were used to establish the baseline noise condition for the proposed project and to calibrate the model. In addition to these baseline noise conditions, traffic factors such as vehicle type and speeds were recorded. These baseline measurements or existing conditions would be used to compare with the No Action Alternative, which uses traffic projections for the year 2025, and the Preferred Alternative. M1 and M2 would also establish the source of existing noise such as traffic-related noise generated from Grand Avenue, 27th Avenue, and Thomas Road. In addition, because of the relatively flat topography of the area, M1 and M2 would also help to measure the amount of noise that is effectively deflected because of existing project-area barrier features such as brick walls and building structures. According to the measurements taken at M1 and M2, existing noise levels were 67 dBA and 61 dBA respectively (refer to Table 12).

Noise levels were evaluated at potentially impacted areas within the project area, which the data illustrates as Receptor Site locations (refer to Figure 18). Receptor Site locations were selected to represent places in the project area where residents may be exposed to high noise levels such as backyards or patio areas. These receptor site locations are not representative of the actual number of residences that may be impacted, but do allow a measure for the purposes of establishing a threshold dBA contour line (refer to Figure 18).

The existing conditions demonstrate that seven receptor sites and one monitor site (Group 1 residences) currently experience noise levels of at least 64 dBA (refer to Table 12, Figure 18). These sites equal or exceed the 64 dBA criteria as identified in the NAC guidelines for Category B land uses. The 64 dBA contour line for the existing conditions scenario parallels Verde Lane and 26th Drive (refer to Figure 18). Existing noise sources and impacts to the Group 1 residences are primarily from traffic-related sources on 27th Avenue and Thomas Road.

Under the No Action Alternative, the noise levels would equal or exceed the NAC limits for Category B land uses at the same seven receptor sites and one monitor site (Group 1 residences) as the existing conditions scenario (refer to Figure 18 and Table 12). The noise sources which effect these Group 1 residences are similar to those impacts demonstrated in the existing conditions scenario. These noise sources are primarily attributable to the traffic-related noise generated on 27th Avenue and Thomas Road rather than Grand Avenue (refer to Table 12). Traffic volumes and delay times would increase by the year 2025 within this segment of Grand Avenue (refer to Table 2) resulting in a near grid-lock of traffic. This congestion would result in reduced travel speeds, and as a result would minimize noise increases. This is due to the

fact that as traffic speeds decrease their associated noise impacts also decrease. The No Action Alternative would not substantially exceed those noise conditions when compared to the existing conditions scenario (refer to Table 12).

Table 12. Projected Noise Levels (dBA)

Receptor Site Location	Existing Conditions (2000) (dBA)	No Action(2025) (dBA)	Preferred Alternative (2025)	Increase Over No Action Alternative (dBA)
Group 1 Residences				
M1	67	67	69	2
R1	67	68	70	2
R2	64	64	67	3
R4	64	65	68	3
R8	66	67	71	4
R9[1]	72	74	n/a	n/a
R11	68	71	73	2
R12	68	71	73	2
Group 2 Residences				
M2	61	63	69	6
R3	58	59	65	6
R7	62	63	68	5
R5	58	60	66	6
R6	57	59	66	7
R10	60	61	67	6

Source: Arizona Department of Transportation. March 2001. Noise Study Report.
[1]Monitor Site R9 would be located within the proposed alignment of the preferred alternative.
Note: Shaded numbers illustrate those monitor or receptor sites that exceed or reach threshold for NAC B land uses.

When evaluating the Preferred Alternative, all receptor and/or monitor sites as identified in Table 12 exceed the approach criteria (64dBA) for NAC Category B land uses. This is a direct result of shifting the Grand Avenue alignment to the northeast, which brings the noise sources (traffic) closer to the residences, and elevating the roadway (Refer to Figure 18). Four of the residences located on the south side of Verde Lane (closest to the proposed project and indicated by an "x" on Figure 18) would be impacted under the existing conditions, the No Action Alternative, and the Preferred Alternative. These four residences would be acquired for right-of-way requirements in the Preferred Alternative.

As a result of elevating Grand Avenue, the grade-separation structure would be visible from the Group 2 residences. The construction of the Preferred Alternative would increase dBA measurements at the Group 2 residences as indicated on Figure 18.

The results indicate that the 64 dBA contour line would move essentially one block to the east and north of its current location. Group 2 residences would include Receptor Sites (R)3, R5, R6, R7, R10 and M2. These sites would experience a net increase between 2 and 9 dBA as a result of the proposed improvements. None of these sites would experience a substantial increase as defined by the ADOT Policy, as mentioned earlier, of 15 dBA. Noise levels would also increase between 2 and 6 dBA over and above the existing conditions at the Group 1 residences, which would be impacted in the future regardless of any proposed improvements.

In summary, Group 1 residences currently and in the 2025 No Action projections would equal or exceed ADOT's Noise Abatement Policy. The primary noise sources impacting these residences occur from those traffic-related sources on 27th Avenue and Thomas Road. Under ADOT's current policy, existing impacts that are unrelated to the proposed project would not be mitigated.

The proposed project would impact the Group 2 residences that are not currently impacted. ADOT would construct a 7-foot high noise wall along the northern side of the Grand Avenue grade-separation structure. This wall would be constructed along the entire length of the mainline structure for an approximate length of 2,000 feet. It would effectively reduce noise impacts to Group 2 residences between 2 and 3 dBA, and would reduce projected noise levels below the approach threshold for these specific types of land uses (refer to Table 13). ADOT would also construct an 8-foot wall south of and parallel to Verde Lane within the proposed ADOT right-of-way. In addition, ADOT would use asphaltic rubber as the primary roadway surface, across the grade-separation structure, in lieu of the preferred cement roadway surface.

Table 13. Comparison of Noise Mitigation Options (dBA)

	Receptor Site	Existing Condition	Preferred Alternative with No Barriers	Preferred Alternative with 7 foot Walls	Total Reduction in Noise Levels
Group 1 Residences	M1	67	69	68	1
	R1	67	70	69	1
	R2	64	67	65	2
	R4	64	n/a	n/a	n/a
	R8	66	71	66	5
	R9	72	n/a	n/a	n/a
	R11	68	73	72	1
	R12	68	73	72	1
Group 2 Residences	M2	61	69	65	4
	R3	58	65	63	2
	R5	58	66	63	3
	R6	57	66	63	3
	R7	62	68	65	3
	R10	60	67	65	2

Source: Arizona Department of Transportation. March 2001. Noise Study Report.

As stated in ADOT Policy and in FHWA Memorandum, *Highway Traffic Noise Guidance and Policies and Written Noise Polices*, abatement measures should reduce noise levels at least 5 dBA in order to provide noticeable and effective attenuation and be considered reasonable. Even though these proposed mitigation measures would not provide a 5 dBA reduction to all receivers, impacts to Group 2 residences would be minimized and effectively reduced below threshold criteria. Therefore, because the recommended noise mitigation would provide a noticeable reduction for Category B land uses, the proposed project would not substantially impact the overall noise quality of the project area.

Other noise abatement measures were evaluated, which included the construction of 10-foot and 12-foot noise walls along the Grand Avenue grade-separation structure, and various wall heights between 12 and 20-feet along 27th Avenue and Thomas Road. Because of the costs associated with these options and by ADOT being restricted by state statute from constructing noise walls on private property, these options were eliminated from further consideration.

H. Landscape/Vegetation Removal/Noxious Weeds

The existing right-of-way has been previously cleared of vegetation for construction of the respective roads, residential uses, commercial, and industrial development. Additional right-of-way would be required. The boundaries required to construct the proposed improvements would be cleared and grubbed. Erosion control would be in accordance with ADOT's Standard Specifications and Section 402(p) of the Clean Water Act.

Under Executive Order 13112 dated February 3, 1999, projects which occur on Federal Lands or are Federally funded must: “subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded.”

In accordance with Executive Order 13112, a survey of the project area was completed and no noxious weeds were found to occur. In order to prevent the introduction of noxious weeds, all earth-moving and hauling equipment would be washed prior to entering the construction site. Therefore, the proposed project or actions associated with the mobilization of equipment to construct these proposed improvements would not contribute to the spread of noxious weeds.

I. Vegetation and Wildlife

Grand Avenue at 27th Avenue and Thomas Road is an urbanized area depleted of natural surroundings. The project area lies within the Lower Colorado River Valley Subdivision with some transition into the Arizona Upland Subdivision of the Sonoran Desert Scrub Biotic Community (Brown 1994.) Because of previous development, the project area provides minimal habitat for native wildlife. Urban environments in the metropolitan area support a variety of wildlife species adapted to urban conditions, but mostly utilize vegetation in residential and commercial landscaping, parks, and agricultural fields. There would be no apparent impacts to vegetation or wildlife because the existing project area has been previously grubbed and cleared for the existing industrial and commercial developments, and these sites have minimal site vegetation.

J. Threatened, Endangered, and Sensitive Species

The U.S. Fish & Wildlife Service's (USFWS) list of endangered, threatened, proposed, and candidate species for Maricopa County was reviewed by a qualified biologist (Barbara Garrison, Logan Simpson Design Inc.). It was determined that no listed species or designated critical habitat would be affected by the construction of the alternatives because the project area is completely urbanized and does not support any suitable habitat; therefore, no biological survey within the project limits would be necessary.

There are no existing protected native plants within the project limits that will be impacted; therefore, there would be no impact to any native plants as a result of this project.

K. Visual Resources

In general, the visual or scenic quality within the project area can be characterized as older commercial or industrial facilities similar to other areas along Grand Avenue. These facilities are typically older buildings with limited improvements. Vacant lots or buildings are run-down, and contain the appearance of debris detracting from the visual quality of the area. Because the terrain within the project area is relatively flat, distant views of mountains can be seen from the project area. Some of the most distinct views include the Estrella Mountains to the south and the White Tank mountains to the west. Prominent built features within the project area include the residential, commercial and industrial development, the BNSF railroad tracks, traffic lights, a transmission tower and overhead power lines.

Except during the construction of the grade-separation facility, the proposed improvements would create a subtle change to the visual character and quality of the project area. The overpass structure and associated ramps would be highly visible to motorists and to the adjacent residential and commercial properties. This structure may detract from the visual character and quality because it would be

approximately 25 feet above ground at its highest point, and visible from the residential area. However, the modern design of these proposed transportation improvements and their associated landscaping would reduce visual impacts. All embankment slopes, detention basins, and affected public right-of-way would be landscaped with low-water use plants and covered with decomposed granite as regulated in the Phoenix Active Management Area. Trees would be planted along the detention basins to screen the facilities from view of the motorists and businesses. Therefore, the proposed improvements would not substantially impact or modify the visual character or quality of the project area.

L. Drainage and Floodplain Considerations

Flood Insurance Rate Maps (FIRM) have been prepared and published by the Federal Emergency Management Agency for the project area. Flood prone areas have also been determined by the Maryvale Area Drainage Master Plan. Impacts on floodplains typically occur when the topography within a floodplain is substantially modified either by placement or removal of materials within the floodplain. Because this project would involve the construction of a grade-separate structure, and would require embankments, four detention basins and associated channels and culverts would be constructed to contain potential flooding events. Ponding occurs on the north side of Grand Avenue, along the east and west side of 27th Avenue. Sheet flow generally runs south or southwesterly. New culverts would be designed to meet the ADOT criteria for a 50-year flood event and the Federal Emergency Management Agency (FEMA) regulations. Existing culverts meeting ADOT criteria and FEMA regulations would be extended as necessary. The objective would be to limit the potential for flooding on adjacent properties. There would be no change to the existing floodplain limits with the construction of the proposed improvements. The preferred alternative would at a minimum, at least replace the current system's storage capacity.

Storm water will be routed to detention basins or to existing storm drain facilities. These facilities would be beneficial as the improvements would aid in the project area drainage, and could potentially improve large scale flooding in the surrounding area. Therefore, the proposed improvements would not substantially impact the associated floodplain, and potentially alleviate some large scale flooding from the surrounding area.

M. Water Resources, Section 404 of the Clean Water Act, and National Pollutant Discharge Elimination System

Because 5 or more acres of land would be disturbed, a National Pollutant Discharge Elimination System permit would be required. The ADOT Roadside Development Section would determine who would prepare the Storm Water Pollution Prevention Plan. The District Construction Office would submit the Notice of Intent and the Notice of Termination to the U.S. Environmental Protection Agency and copies to the Arizona Department of Environmental Quality. A Notice of Intent would be submitted to the U.S. Environmental Protection Agency at least 48 hours prior to the start of construction.

During construction, care would be taken to ensure that construction materials are handled in accordance with *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction* Section 104.09 (2000 Edition) and the Water Quality Standards in Title 18, Chapter 11 of the Arizona Administrative Code as administered by the ADEQ. Excess concrete, curing agents, form work, loose embankment materials, and fuel would not be disposed of within the project boundaries.

The proposed construction activities would not involve the discharge of dredged or fill material into waters of the United States; therefore, no Section 404 permit or Section 401 Water Quality Certification is required. Therefore, the proposed project would not impact any jurisdictional waters of the U.S. or violate any state water quality certification requirements.

N. Materials Sources

The estimated quantity of fill materials required for this project is 252,000 cubic yards. The construction of the four detention basins would provide the estimated fill. If additional fill is required, Detention Basin No. 1 may be deepened to accommodate the fill requirements. Any material sources required for this project outside of the project area would be examined for environmental effects, by the contractor, prior to use, through a separate environmental analysis. The contractor would comply with the *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction,* Section 1001 Material Sources (2000 Edition). There are no known impacts associated with the use of fill material from these sources.

O. Construction Debris Disposal

Excess waste material and construction debris would be disposed of at sites supplied by the contractor. Disposal would be made at either Municipal Landfills approved under Title D of the Resource Conservation and Recovery Act (RCRA), Construction Debris Landfills approved under Article 3 of the Arizona Revised Statutes (ARS) 49-241 (Aqua Protection Permit) administered by ADEQ, or Inert Landfills. Inert Landfills are not regulated by ADEQ. There are no known impacts associated with the approved disposal methods as provided for at landfills approved under Title D of RCRA.

P. Hazardous Materials

A Preliminary Initial Site Assessment (PISA) was conducted for the presence of hazardous materials within the project area. The assessment included a field reconnaissance, review of applicable Federal and state agency records, and a review of aerial photographs. The PISA indicated that four parcels contain potential hazardous materials. All parcels were cleared and except for one parcel, no additional assessment would be required. This parcel would require a full Phase I Site Assessment, and would be completed by ADOT prior to right-of-way acquisition. A Phase I Site Assessment is the industry standard to meet the "due diligence" requirements of the Comprehensive Environmental Response, Compensation Liability Act (CERCLA). Requirements for Phase I reports are defined in American Society for Testing and Material's report *E1527-00 Standard Practice fo Environmental Site Assessments: Phase I Environmental Site Assessment Process*.

According to *Arizona Department of Transportation's Standard Specifications for Road and Bridge Construction, Section 107 Legal Relations and Responsibility to Public* (2000 Edition) (Stored Specification 107HAZMT, 01/15/93), if previously unidentified or suspect hazardous materials are encountered during construction, work would stop at that location and the ADOT Engineer would be contacted to arrange for proper treatment of those materials. Such locations would be investigated and proper action implemented prior to the continuation of work in that location.

Because the proposed project would involve the identification and clean-up of hazardous sites or materials, the proposed project would be a beneficial impact to the project area concerning potential hazardous materials.

V. SECONDARY AND CUMULATIVE IMPACTS

A. Purpose and Need

NEPA directs Federal agencies to examine the consequences of proposed activities in light of an overall goal to protect and enhance the human environment. These consequences are grouped into the general categories of secondary and cumulative effects.

B. Regulatory Basis

Under the Executive Office of the President of the United States, the CEQ promulgates regulations, binding on all Federal agencies, to implement the procedural provisions of NEPA. The regulations address the administration of the NEPA process, which include the evaluation and resulting magnitude of direct, indirect, and cumulative impacts, as defined in 40 CFR 1508.25. The FHWA implements NEPA and the CEQ guidelines with its environmental regulations at 23 CFR 771. The regulations describe documentation requirements and procedures for environmental clearances. Concerning Secondary and Cumulative Impacts, these are measured in terms of their context and intensity.

Context as defined by the CEQ means that the magnitude of an action must be analyzed in several circumstances such as society as a whole (human or national), the affected region, the affected interests, and the locality. Both short- and long-term effects are relevant. Intensity refers to the severity of the impact. These impacts may be both beneficial and adverse, but can be determined to be substantial even if the Federal agency believes the balance of the effect will be beneficial.

C. FHWA Policy Statement and Guidelines

In April 1992, the FHWA Project Development Branch issued a policy paper titled *Position Paper: Secondary and Cumulative Impact Assessment In The Highway Project Development Process*. The FHWA and ADOT recognize the growing need to include analysis of indirect impacts in project environmental studies. The commitment to conduct comprehensive environmental and public interest decision-making requires the collection and presentation of all information relevant to a project, including its indirect consequences and contribution to area-wide change. This FHWA policy paper presents preliminary information and guidance, but does not prescribe specific techniques.

The following Secondary and Cumulative Effects sections only respond to those impacts that were originally considered to be either potentially adverse or beneficial. Elements without Secondary or Cumulative Impacts were not discussed.

D. Secondary Impacts

Secondary effects are broadly defined by the CEQ as "those impacts that are caused by an action and occur later in time, or are farther removed in distance but are still reasonably foreseeable after the action has been completed" (40 CFR 1508.8). They comprise a wide variety of secondary effects such as changes in land use, economic vitality, and population density. Secondary impact issues relevant to this project include access, noise, visual quality, and economic vitality. Land uses were not considered because most of the project area has been developed for the last decade or longer, and most nearby vacant parcels would be purchased for the proposed improvements.

1. Access

Access control plans and features would be implemented for the proposed Grand Avenue grade-separation structure at 27th Avenue and Thomas Road. These plans would require some streets to be closed near their existing points of connection with Grand Avenue, such as Cheery Lynn Road and 29th Drive. Pavement markings would restrict left turns from southbound 27th Avenue to Earll Drive. Turning movements from Universal Technical Institute would allow motorists only to exit southbound onto 27th Avenue. These restrictions could encourage cut-through traffic into nearby business parking lots or residential neighborhoods, as motorists attempt to navigate around closure points or other access control features. Measures could be taken to limit these impacts such as signing, law enforcement, and/or implementing speed control bumps (specifically for the residential area). Because this is not easily forecasted or measured, the magnitude of impacts are not truly known at this time, but are not anticipated to be substantial.

2. Noise

A noise analysis was completed and documented in *Noise Technical Report* (ADOT 2000), and is also described in this document in Section IV, G. The results of this study indicate that noise levels would increase in time regardless of any future proposed improvements. Because the project involves the construction of a grade-separation structure, meaning the roadway would be elevated, the noise disturbance would be in direct line-of-site to nearby residences. As traffic increases in time on Grand Avenue additional noise would be generated. It is not anticipated that the noise sources attributable to the construction of the preferred alternative would substantially differ from the future no build conditions.

3. Visual Impacts and Economic Vitality

The results of modernizing traffic facilities and associated landscaping would improve the visual character of the setting, and to some degree, potentially the economic vitality. These changes could improve future marketability and encourage redevelopment of nearby industrial businesses or improvements to be completed at residences. Certain parcels could become more marketable and even encourage property owners to consider visual improvements to their building or property, such as additional landscaping or property clean-up, because of the area-wide visual setting.

Parcels could also increase in value because of reduced traffic congestion and delay times, changes to access, which would improve ingress and egress conditions for exporting or importing goods, or accessing neighborhoods. Because the true results of these improvements would not be known until sometime after completion, the overall future economic vitality of the project area is unknown, although impacts are not anticipated to be substantial. Therefore, the proposed project would not substantially impact the visual character or economic vitality of the project area in the future.

E. Cumulative Impacts

Cumulative effects are the combined impacts on the environment that result from the incremental effect of the proposed action when added to past, present, or reasonably foreseeable future actions within the immediate vicinity of the project area (40 CFR 1508.7). These impacts are less defined than secondary effects. The cumulative effects of an action may be undetectable when viewed in individual context of direct or even indirect, but could add to a measurable environmental change. For this assessment, past actions are those considered to have occurred since 1990, and foreseeable future actions are based on the best available information from the associated planning agencies. The majority of the development within the project area has occurred prior to 1990.

1. Population Growth and Transportation Facility Development

The West Valley is experiencing ongoing residential, commercial, and industrial development. The result of this growth is more population, more employment, more revenue for the state and local jurisdictions, and more demand upon the area's transportation facilities. The population in Arizona has grown steadily over the past 30 years, increasing from 1,775,399 persons in 1970 to 4,961,953 in 2000. Maricopa County has grown from 971,228 in 1970 to 2,122,101 as per the 1990 Census. According to the Arizona Department of Economic Security, the 2020 population in Maricopa County is estimated to grow to nearly 4,516,090 people. Transportation improvements do contribute to future development site selection, but because Grand Avenue is not the sole arterial street connecting the West Valley, it is unlikely that any proposed improvements to Grand Avenue would greatly increase or contribute to development site selection. Other

key links to the West Valley such as I-10, Loop 101 (Agua Fria Freeway), and the proposed Loop 303 alignment, and any improvements made to these facilities in the future would more likely be contributors that could promote development in the West Valley.

The most influential future actions associated with this project are the proposed realignments of other intersections along Grand Avenue, and any future considerations for expansion or implementation of expressway facilities. ADOT is considering making improvements at a total of eight sites between I-17 and the Agua Fria Freeway, which include the following:

- 27th Avenue and Thomas Road
- 43rd Avenue and Camelback Road
- 51st Avenue and Bethany Home Road
- 55th Avenue and Maryland Road
- 59th Avenue and Glendale Avenue
- 67th Avenue and Northern Avenue
- 75th Avenue and Olive Road
- On-ramps to the Agua Fria (Loop 101L) from 91st Avenue

Four of these proposed project sites are currently being evaluated and designed through a Design Concept Report or similar design documents, and separate EA's. These sites are 27th Avenue and Thomas Road, 43rd Avenue and Camelback Road, on-ramps to the Agua Fria Freeway at 91st Avenue, and 51st Avenue and Bethany Home Road. Depending on scheduling of other proposed improvement projects along the Grand Avenue corridor, construction-related traffic impacts could limit or potentially impact the overall function and use of Grand Avenue during these construction projects. Traffic control plans would mandate that all local access to businesses and residential areas would be maintained during construction. In addition, projects would be scheduled to limit overlapping and also to minimize the overall impacts to the operation and function of the Grand Avenue corridor. Motorists could use other arterial streets such as Indian School Road or Osborn Road, or any construction-related detours to access businesses or residences. This would require that motorists navigate around construction zones and would create longer travel times and could be an inconvenience. It is not anticipated that these construction impacts would be substantial because they would be temporary.

It is anticipated that traffic operations on Grand Avenue would be considerably improved after the completion of the eight improvement projects. Current and projected average ADT numbers and LOS classifications illustrate that these eight intersections operate at the poorest of traffic operation levels with substantial delay times usually greater than 1.3 minutes. The recommended intersection improvements would not only improve the LOS at each of the proposed project sites, but would also improve community mobility and access throughout the corridor.

Therefore, it is not anticipated that the proposed project would result in any substantial cumulative impacts as a result of any known traffic improvement projects or substantially impact, either adverse or beneficial, population growth in the West Valley.

2. Natural Environment

The most notable cumulative impacts with respect to the natural environment of the associated Grand Avenue projects are the results of channelizing drainage and detention of storm water. Storm water will be routed to detention basins or existing storm drain facilities. These facilities would be beneficial because they would aid in the area's drainage and potentially alleviate some large-scale flooding near the proposed project sites. At a minimum, these drainage improvements would not increase area flooding. The proposed drainage facilities may also provide a link to future area-wide drainage planning being currently evaluated by the Flood Control District of Maricopa County and local jurisdictions.

Recently completed, ongoing, and future urban and suburban development, including highway construction, contribute toward the cumulative loss of undeveloped lands and changes to the natural environment. Because the proposed Grand Avenue roadway improvements would affect lands that have been previously disturbed, the proposed activities would not increase cumulative effects on biological resources in the region.

The project area is located within a non-attainment area for CO, PM_{10}, and O_3 air quality standards. The traffic forecasts used for the air quality analysis were based on the construction equipment and traffic generated by existing and anticipated future land uses within the project area. In addition, future year background pollutant conditions, based on regional air quality trends, were added to emissions generated by the project. The results of the analysis indicate that regional and localized air quality would not be adversely affected at any of the proposed project areas currently being evaluated. Therefore, it is not anticipated that human health hazards and lower ambient air quality would result from the current or future construction projects proposed along Grand Avenue.

In summary, the proposed improvements would not have a substantial cumulative effect either adverse or beneficial, on the natural environment of the project area with respect to floodplain, drainage, biological resources, or air quality.

3. Human Environment

Because of the potential for new development as a result of improved traffic circulation and access through the corridor, the social and economic impacts should be positive. Relative to Maricopa County, notable populations of minority groups and low-income persons occur within neighboring residential areas adjacent

to the Grand Avenue corridor. These distinct populations, as defined by Executive Order 12898, would not be disproportionately impacted by any of the proposed projects. Community cohesion would be maintained throughout the corridor. Access to public facilities would be maintained. The possibility of new business development as a result of the improvements made to the corridor may increase job opportunities for these populations. Therefore, the potential result of these eight project sites and the improved operation and functionality of Grand Avenue could potentially provide new job opportunities for low-income and minority populations in the future. In addition, it is not anticipated that these projects would substantially alter neighborhoods or community character that are valued by low-income and minority populations through incremental development.

As a result of anticipated operational improvement and functionality of the Grand Avenue corridor, new development along the corridor may be encouraged. The shifting of roadway alignments would provide new opportunities at sites currently undeveloped, such as the agricultural land designated for future industrial use along the 91st Avenue on-ramp project. In addition, these proposed alignment changes could promote improvements or expansion of existing commercial and retail developments, because better traffic operations could encourage additional patronage to the corridor. Therefore, the cumulative impacts of these eight projects may improve or promote the development of nearby vacant lands, and encourage improvements to existing land uses within the Grand Avenue corridor while potentially improving the overall community character.

The RPTA Yellow Line along Grand Avenue may be altered with the completion of these proposed grade-separation structures at 27th Avenue, 43rd Avenue, 51st Avenue, 55th Avenue, 59th Avenue, 67th Avenue and 75th Avenue. The grade-separation structures may disconnect existing passenger transfer points along Grand Avenue from other RPTA bus routes, although further evaluation of these impacts to the actual bus routing and bus transfer points would be completed during final design of each project. As a result, the RPTA Yellow Line may no longer function as it does today. The positive result of this potential change is that expressway-like bus service would be possible. Even though impacts to regional bus transit service along Grand Avenue are likely, it is anticipated that these changes may be beneficial overall.

The visual quality of the existing Grand Avenue corridor is characterized by older commercial and industrial buildings, which are common throughout this segment of the corridor. Some of these existing developments would be acquired during right-of-way proceedings for the proposed realignment of the various intersections. The overall character and visual quality may be improved by the combination of the proposed new traffic facilities and associated landscaping at each of the eight project sites and the acquisition of parcels of lands where portions of these older commercial and/or industrial buildings occur. New developments could potentially be constructed adjacent to these new roadway alignments or additions could be made to existing commercial or industrial facilities. The traffic facilities themselves would be constructed with modern design and landscaped along adjacent slopes, detention basins, and public right-

of-ways. Therefore, the cumulative impacts on the visual quality and character of the Grand Avenue corridor are anticipated to create a positive change.

At-grade train crossings would be reduced after completion of all improvement projects throughout the corridor. Four of the proposed intersection sites would involve a grade-separation structure over the BNSF mainline. In addition to improving the functionality and operation at many of the intersections along Grand Avenue, this would also result in reductions in train-related automobile accidents. Therefore, the cumulative impacts as a result of the proposed intersection improvements would result in a beneficial impact regarding the reduction in train-related traffic accidents.

Therefore, the proposed project would not have a substantial cumulative impact on any distinct minority or other protected populations, land uses, regional public transit services, the visual character and quality of the Grand Avenue corridor, or train-related traffic accidents.

4. Cultural Environment

Development impacts on the cultural environment at each of the eight project sites along Grand Avenue also contribute to cumulative impacts. Because of the presence of historic and prehistoric properties or sites within the Grand Avenue corridor, careful consideration and evaluation has been completed for these features. Several properties were considered potentially eligible or eligible for listing on the NRHP.

By completing the proposed improvements at each of these eight sites, it is not anticipated that any of these historic properties or districts would be substantially impaired. In addition, the fragmentation of historic districts as a result of future development is not anticipated. Any loss of prehistoric or historic features would only represent a fraction of the local, regional, or state resource base. Therefore, the proposed project or future known actions would not have a substantial cumulative impact the historic integrity or cause the fragmentation of historic districts.

VI. PUBLIC INVOLVEMENT AND AGENCY COORDINATION

A. Agency and Stakeholder Coordination

Coordination letters were sent to the following agencies and/or stakeholders for the EA. These letters provided a brief project description and location, and requested comments or issues regarding the natural, physical and socio-economic environments of the proposed project area.

- Alhambra School District
- Arizona Department of Public Safety
- Burlington Northern Santa Fe Railway
- Maricopa Association of Governments
- City of Phoenix
- Regional Public Transit Authority
- Maricopa County
- Flood Control District of Maricopa County
- Salt River Project
- Southwest Gas Company
- Cox Communication
- QWEST (formerly U.S. West Communication)

The following comments were received during the October 28, 1999 agency scoping meeting for the proposed project. A reference to the specific chapter of this EA where the comment subject matter is discussed is provided below, immediately following each comment.

An agency coordination meeting and field review were held on October 28, 1999. Issues included the following:

- The consideration of moving the southeast bound on-ramp entrance onto 27th Avenue. (Refer to Chapter III.)
- The impact of the overpass on the residential area. (Refer to Chapters III and IV.)
- The sidewalks, curbs, and crosswalks do not meet the Americans with Disability Act (ADA) requirements, sidewalks, and landscaping. (Refer to Chapter III.)

All new facilities which include sidewalks, curbs, or pedestrian access points through intersections would be designed to comply with the requirements set fourth by the ADA. These issues were evaluated by ADOT and are included as part of the project record file.

B. Public Involvement

Two public information meetings have been held in the City of Phoenix, Maricopa County, Arizona, at the Granada East Elementary School Multi-Purpose Room located at 3022 West Campbell Avenue. The meetings were held on November 3,1999, and February 9, 2000, to obtain public input regarding the social, economic, environmental, and design issues for the project. A total of 98 people attended the first meeting and 102 people attended the second meeting. Meeting advertisements were placed in the Arizona Republic on October 20, 1999, October 31, 1999, January 27, 2000 and February 6, 2000 for the respective public meetings. In addition, 15,000 door hangers were distributed within the immediate vicinity of the project area and public service announcements were sent to the media.

The following comments were received during the November 3, 1999 and February 9, 2000 public meetings for the proposed project. A reference to the specific chapter of this EA where the comment subject matter is discussed is provided below, immediately following each comment.

Comments made during the November 3rd public meeting included the following:

- Would the overpass stop the excess traffic flow in the neighborhood? (2 comments) (Refer to Chapter III.)
- Would the overpass lower the price value of the houses? (Refer to Chapters III and IV.)
- Will there be excess noise? (2 comments) (Refer to Chapter IV.)
- There is no access to Thomas Road from northwest-bound Grand Avenue in the two proposals. (Refer to Chapter III.)
- The entrance to 27th Avenue at Verde Lane should be closed. (2 comments) (Refer to Chapter III.)
- Cut-through traffic will become worse during construction. (6 comments) (Refer to Chapter III.)
- I am concerned about entrance into my building and loss of business. (Refer to Chapters III and IV.)
- The project disrupts development plans. (Refer to Chapter IV.)
- What about the flooding on Verde Lane? (Refer to Chapter III.)

Comments made during the February 9, 2000 meeting included the following:

- Why not build Thomas Road over Grand Avenue and the railroad tracks like Indian School Road. It would take less right-of-way and would be cheaper. (Refer to Chapter III.)
- What about the flooding on Verde Lane? (2 comments) (Refer to Chapter IV.)
- No left turns into businesses will be allowed which will hurt business. (3 comments) (Refer to Chapter III.)

- The overpass is awfully close to homes on Verde Lane. (Refer to Chapter IV.)
- The comment of “sidewalks are a bad idea”. (2 comments) (Refer to Chapters III and IV)
- Need more than typical landscaping, detention basins should be heavily landscaped and multi-use facilities, incorporate simple designs into concrete form work like other overpass projects. (Refer to Chapter IV.)

These issues were evaluated by ADOT and are included as part of the project record file for this project. A public hearing will be held following the signed Draft EA. A copy of the Public Hearing Notice is provided in the appendix.

C. Project Coordination

Preparation of this environmental assessment was the responsibility of Diane Simpson-Colebank and Michael Shirley of Logan Simpson Design Inc. (LSD) in coordination with Karim Dada of ADOT EPG. Technical investigations and information were provided for Title VI Environmental Justice by Shero Holland with LSD in coordination with Tammy Flaitz of ADOT EPG, cultural resources by Linda Simone Grafil, Dave Webb, and Chester Shaw with LSD in coordination with Bettina Rosenberg and Michael Ohnersogen of ADOT EPG; hazardous materials by ADOT EPG; air quality, noise and drainage by URS Corporation; and project description and roadway design by Dave French and Brian Curtis of URS Corporation. Other ADOT project representatives included Mike Bowyer and Jim Romero (Valley Project Managment). Project representatives from FHWA included Ken Davis, Bill Vachon, and Steve Thomas.

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